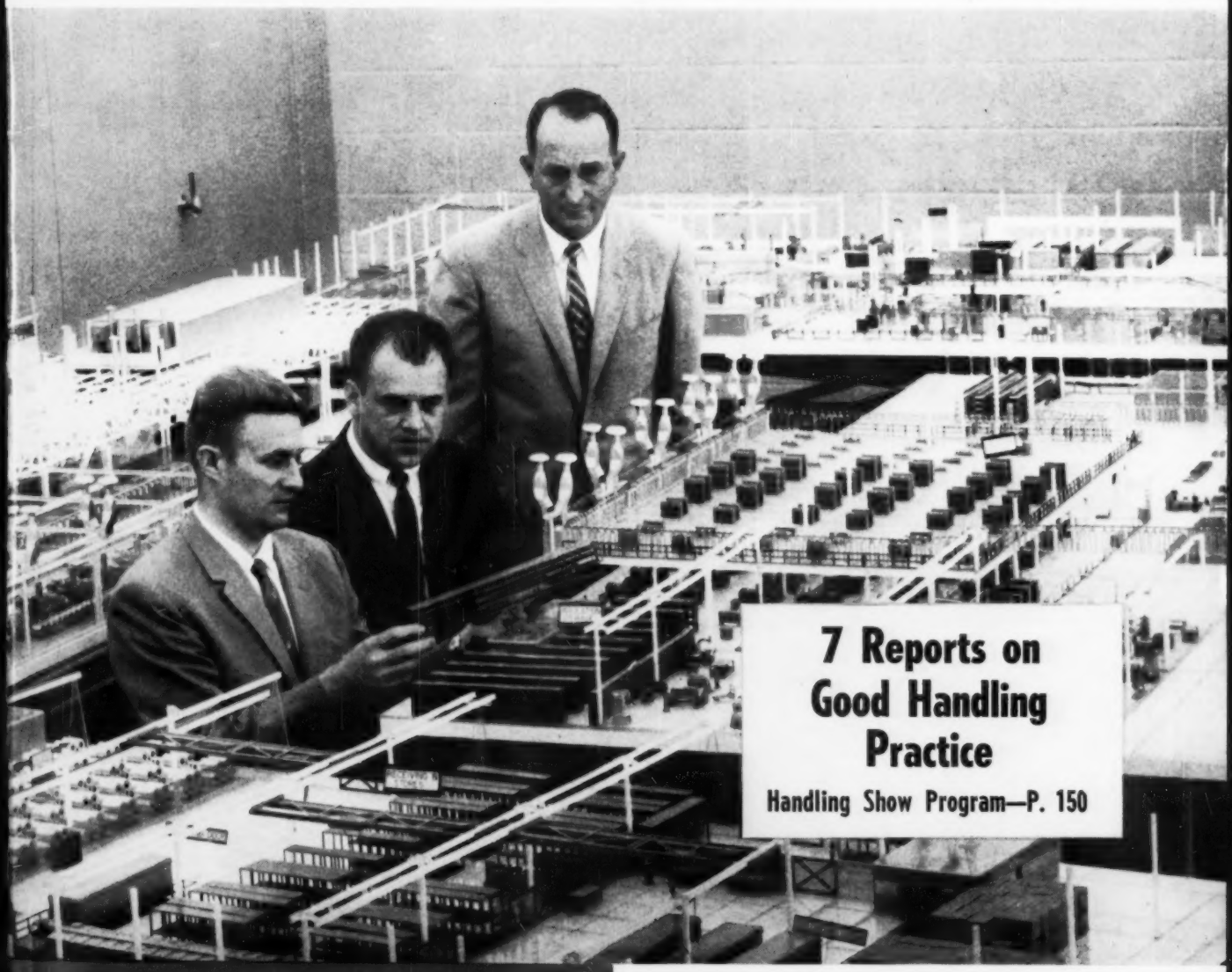
The IRON AGE

May 28, 1959 A Chilton Publication The National Metalworking Weekly



7 Reports on Good Handling Practice

Handling Show Program—P. 150

Westinghouse's Zarbin, Murrin and Nolan—

Smooth Handling Starts From The Ground Up P. 105

Pressure Mounts For Capital Spending Boom – P. 65

Industry Meets New Defense Needs: Part 2 – P. 72

Digest of the Week – P. 2-3

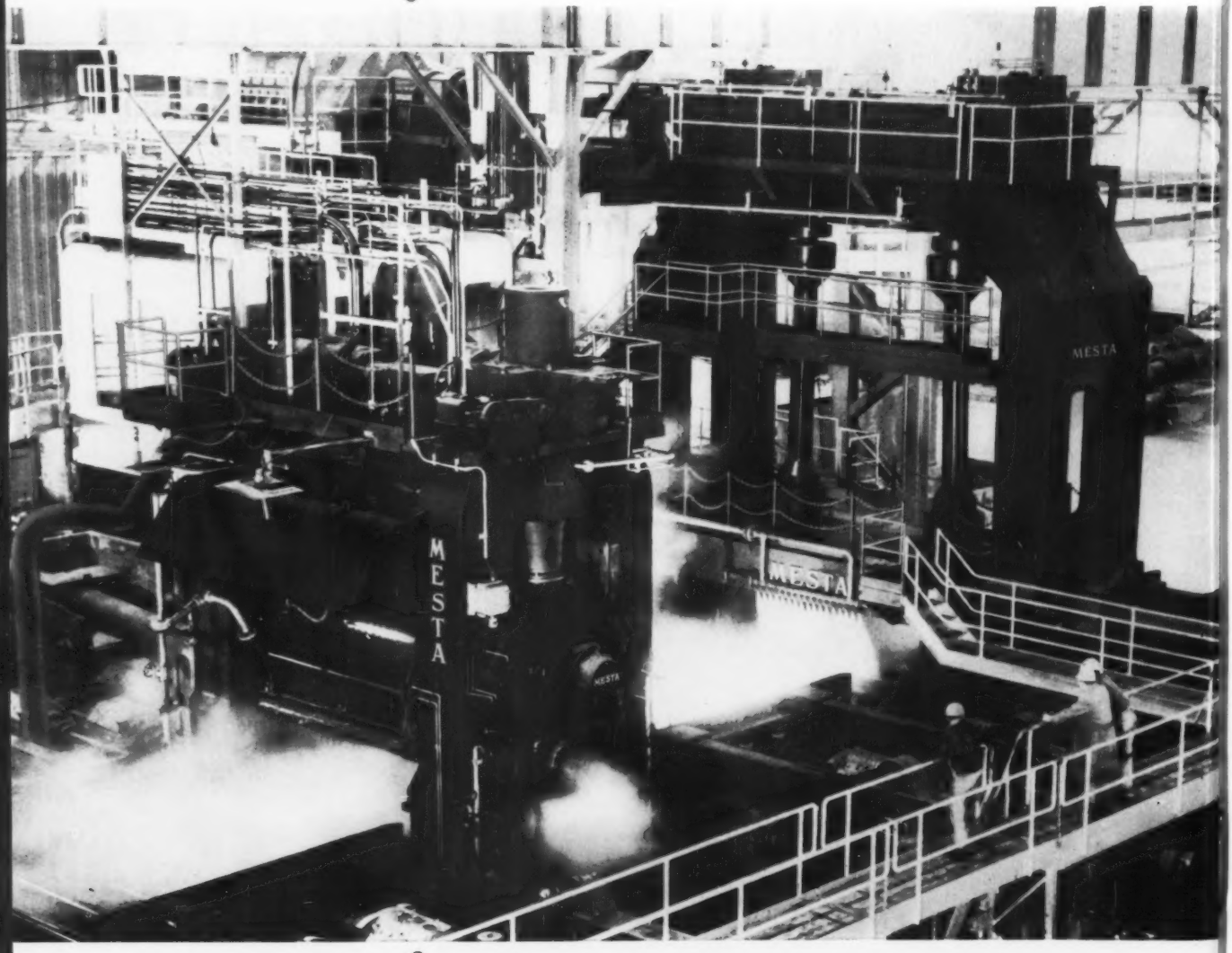
DESIGNED AND BUILT BY

MESTA

...for LUKENS STEEL COMPANY

COATESVILLE, PA.

At Lukens Steel Company, the 140″ Four-High Reversing Plate Mill and Vertical Edging Mill is an unusual installation. Although this mill will be operated primarily as a slabbing mill to reduce ingots into slabs for rolling plates on other mills, it can complete the rolling of plates to finished sizes directly. The Vertical Edging Mill, largest ever used in tandem with a Plate Mill in this country, provides edge rolling of the ingot which remains in the horizontal position during the complete operation. This installation is the major unit which will increase the plate rolling capacity at Lukens by 40 per cent.



Designers and Builders of Complete Steel Plants

MESTA MACHINE COMPANY

PITTSBURGH, PENNSYLVANIA

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ABOUT THE SELECTION AND FABRICATION OF STEEL

CAN GET ANSWERS FAST WHEN

THEY CALL THEIR LOCAL STEEL SERVICE CENTER.

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BASED ON EXPERIENCE GAINED IN WORKING WITH

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The IRON AGE

May 28, 1959—Vol. 183, No. 22

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CAPITAL SPENDING

Boom Ahead? — Steel leads a parade of bigger capital spending plans. It could be a boom; or a steel

strike could nip it in the bud. Most spenders want better efficiency from a replacement, rather than more equipment. P. 65

STEEL LABOR

McDonald Under Pressure—Steel management's stone-wall policy has all but stymied union strategy. McDonald must choose between a "divide-and-conquer" or industry-wide strike. P. 70

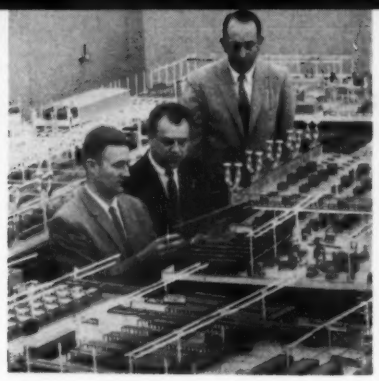
MODERN DEFENSE

Missiles and Aircraft—Makers of missile and aircraft parts are exploring new frontiers of metalworking. New concepts of defense are being met by industry with new materials and techniques. Part 2 of a series. P. 72

AUTO NOISE

Tough to Control—Engine and

Metalworking



PLAN FOR HANDLING: In every step of planning its new transformer plant, Westinghouse Electric Corp. puts stress on cutting material handling costs. Looking over 3-D model of the plant are (left to right) W. A. Zarbis, T. J. Murrin and C. G. Nolan. P. 105

road noise has been largely overcome by acoustical engineers. But other noises which were drowned out before keep popping up. P. 83

AUTOMATE

It's the Answer—Ralph Cross, head of the Cross Co., Detroit, says top management must take the lead in driving for more automation as answer to foreign rivalry. P. 91

HANDLING FEATURES

PNEUMATIC HANDLING

For Chip Removal — A small blower develops hurricane force to blow screw-machine turnings right out of a plant and into a discharge hopper. It's a boon to housekeeping and a big cut in manual handling. In connection with the setup, a reclaiming unit processes chips to recover oil. P. 110

ELECTRONIC GUIDANCE

Through Warehouse Routes—An in-the-floor system features electronically-actuated switches. Just set two dials on one of 700 trucks and the system tows it to the right destination. The setup consists of 9250 ft of conveyor tracks forming four main loops and 13 spurs. P. 112

HANDLING HUGE DIES

In One Piece—Designed to handle up to 200,000 lb, a new lift truck cuts die handling time by 50 pct. It gives dies a through route from storage to press and handles built-up dies as single units. P. 115

PACKAGING BULK SCREWS

Cartons Ease Problem—Cartons get the nod over drums because of easier storage and handling. Customers get the screws in better shape too. P. 116

"CONTAINERIZATION"

Cuts In-Between Handling—It's the principle of using a steel or aluminum container to carry a large number of units for shipment between two or more points. The method integrates transportation with packaging, materials handling, and distribution. P. 118

MARKETS & PRICES

SERVICE CENTER PRICING

New System Favored — Buyers like revised system of item quantity discounts now used by Pittsburgh and Cleveland service centers. With careful buying, the system saves them money. P. 69

STOCKPILES

They're Obsolete — Advancing technology has rendered our vast stocks of raw materials obsolete. But selling them might upset markets, so government is stuck with billions of dollars worth. P. 87

SEATTLE'S FUTURE

Geared to the Missile—Industrial health of the Seattle area is closely tied to the fortunes of Boeing. And right now Boeing is concentrating on missiles and jets. P. 89

BEHIND THE SCENES

Steel Labor News Blackout—It is a cloak for the wide gap between labor and management. Here's the story of why the situation is worsening despite smiles for the benefit of the press. P. 155

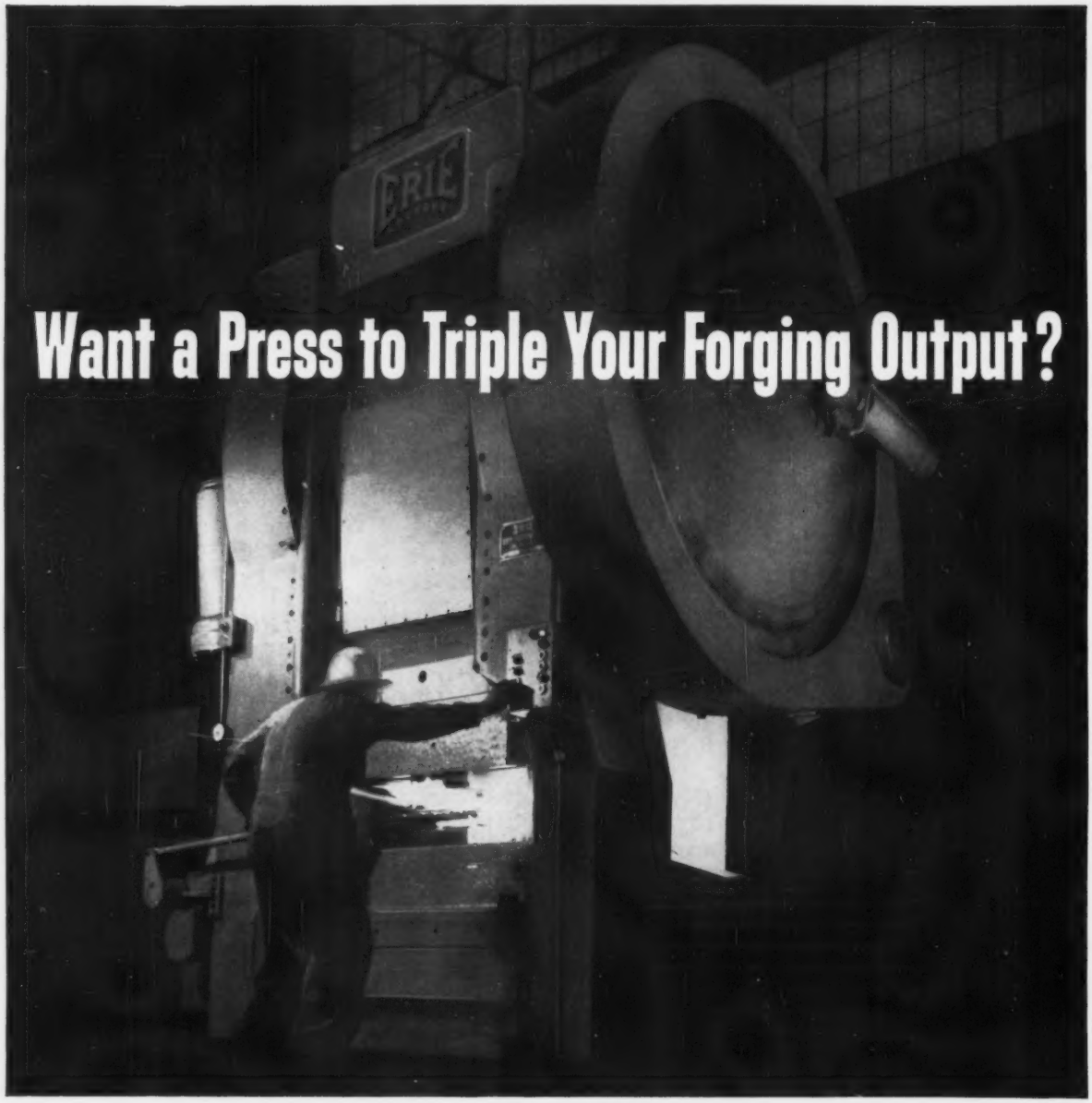
BEARINGS SALES

Demand Is Strong — Bearings makers are operating at full capacity to keep pace with orders. Business may taper off a little this summer. P. 156

NEXT WEEK

BUSINESS LEADERSHIP

How To Get Ready—There are many rungs at the top of the business ladder for those who prepare for them. Next week personnel expert S. M. Boyden tells how to get yourself ready for leadership in business.



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We'll build the press for all your forging requirements . . .

Tell us your forging problems and give us your production specifications—we'll do the rest.

Erie Foundry, one of the first companies to automate forging, can provide specially designed *high volume* presses in capacities of 1000 to 8000 tons. Instead of the three machines and nine men formerly required, now you need only one Erie automated forging press and only one operator observer—to triple your present production rate! Trimming, too, can be accomplished in a single production cycle. With billet supply and finished part removal conveyorized, it is possible to achieve a production volume of, say, 1200 track-link forgings per hour.

Erie Foundry has a complete line of machines designed for high volume production of such parts as connecting rods, gear blanks, automotive and tractor valves, pinions, track links and wheel hubs.

We would like to discuss application of automated presses to your production requirements. For the complete story, phone or write Mr. R. E. Sanford, Erie Foundry Company, Erie 1, Pa.

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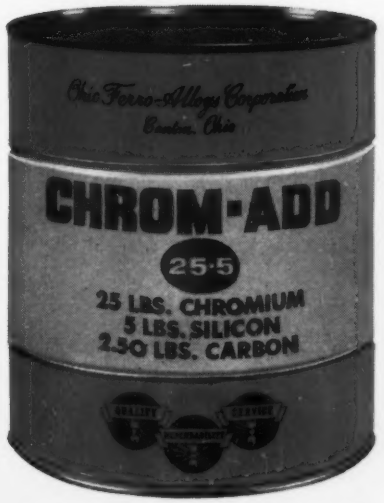

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CHROM-ADD 25-5 is packed in sealed steel cans each containing 25 lbs. of chromium and 5 lbs. of silicon. For each 1% chromium addition, you get .20% silicon. Consequently, supplemental ladle additions of ferrosilicon are substantially reduced or, in many cases, not required at all.

Get the facts now on CHROM-ADD 25-5 . . . the accurate, convenient and economical way to produce chromium steel in the open hearth. Our nearest sales office will be glad to give you full details.

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ANOTHER ADVANTAGE: Pallets holding sixty cans for convenient handling and storage.

PHOTO BY KARSH OF OTTAWA

"The Sharon kind of steel quality eliminates a big production problem"

—JAMES E. STILES, vice president of production, Macomber Incorporated, Canton, Ohio.

"Into each of our finished products goes hundreds of pounds of steel, a great deal of manpower, and the Macomber reputation for rugged dependability," says James E. Stiles, vice president of production at Macomber, one of America's leading producers of steel joists, roof decking, and structural steel framing.

"For this reason our supply of mill steel must meet our specification as a single inch of bad steel can cost us hundreds of dollars. Over the years we have learned to depend on the consistent quality of steel from *Sharon Steel Corporation, Sharon, Pa.*"

SHARONSTEEL

SHARON *Quality* **STEEL**

The Steel Cold War Is It Really a Phony?

This is "The" year in steel labor relations. What happens because of current contract negotiations will affect both sides for years—and in more ways than one.

Each decided to try its case in public this year. That was a serious move for steel companies. In the past, they have been—at times—less than adept in reaching the "public." Labor has had more identifying labels to talk about.

This time the steel industry has done a good job, better than in the past. But the union has also souped up its promotion campaign—even to the extent of comparing apples and grapes as if they were one and the same.

Since both sides embarked on a public campaign—and each accuses the other of starting it—the die is cast. The war of press releases and advertisements will go on, as will the negotiations at the Roosevelt Hotel in New York.

In this cold war between steel labor and management where the stakes are so high, just how much—if any—of management's side is phony? Steel managements say this is for real. They insist publicly and privately that they mean what they say about "holding the line."

Today the steel industry's predicament is similar to that of the shepherd who once too often yelled "wolf, wolf." True, in the past the steel industry has put up a stiff fight. But after each of five strikes it lost out. The point not clearly understood is that customer pressure, White House pressure, and union power caused a cave-in. But the industry's detractors saw it as a buckling action on the part of steel.

Lawyers, advertising executives, customers, union observers, some steel officials (privately of course) and government people do not believe the steel industry will act any differently this year than it has in the past. Many of these people feel the 12 steel firms will be a pushover when the pressure is turned on by the union, customers, and the government.

What these people don't know is that it is really "different" this time. If by any stretch of the imagination steel firms were to be sitting ducks for the union, steel leaders would never be listened to again when they talk about what they are "going to do."

If the steel labor cold war this year is a phony, then we are breeding a race of butter fingers to run the steel industry.

It's our guess we aren't!

Tom Campbell

Editor-in-Chief

CASE HISTORIES

New Departure super precision angular contact bearings add new sales appeal to high frequency grinding spindles.

Photo: Courtesy Bryant Chucking Grinder Co., Springfield, Vermont

Ball Bearings Cut Costs $180.00 On 100,000 RPM Grinding Spindle!

CUSTOMER PROBLEM:

Machine tool maker experienced excessive assembly time with integral shaft type ball bearings in the production of 100,000-rpm grinding spindles for precision grinders. The ball bearing, with ground shaft serving as inner race, plus special balls, separator and outer race, required careful parts matching and assembly. Also, shaft and bearing replacement costs, if required, were high.

SOLUTION:

N/D Sales Engineer, in cooperation with the manufacturer, recommended using New Departure production ball bearings fitted directly to the shaft. These super precision, ultra high speed ball bearings eliminated the need for ball track grinding and delicate eccentricity matching at assembly. Using N/D ball bearings and engineering assistance, the manufacturer reduced parts and assembly costs $180 per unit. What's more, in the rare case of spindle damage, shaft assembly replacement costs have now been reduced $175 (over earlier models) . . . shaft assembly or bearings can be replaced separately, thanks to New Departure.

If you have new machine tool designs on the board, or are experiencing questionable costs in production, why not call on New Departure? There's probably a high precision N/D production ball bearing that can save you time or money! For more information, write Department S-5.

NEW DEPARTURE

DIVISION OF GENERAL MOTORS, BRISTOL, CONN.

NOTHING ROLLS LIKE A BALL

Alloy Resists Fluorides

A new nickel-base alloy was developed as a container material for molten fluoride salts. It resists embrittlement upon continuous exposure to service temperatures up to 1600°F. This, combined with the alloy's corrosion resistance, indicates a valuable material to cope with high-temperature corrosion problems. Tests show oxidation resistance in air up to 1800°F.

Sinter Boosts Iron Output

Daily iron production of a blast furnace went from 653 to 1073 tons by replacing natural iron ore with sinter. The self-fluxing sinter is made up of caked, iron bearing materials containing either dolomite fines, or a mixture of calcite and dolomite fines. In addition to reducing the amount of limestone or other flux required, it lowers the rate of coke consumption.

New Process for Plating

A new chrome plating process is now in production use for automotive trim and accessories. The process involves two coatings of chrome. Described by its developer as revolutionary, it features lower nickel use, better appearance and strong corrosion resistance.

Computer to Think for Mill

First application of a "thinking" control in steel will be on a plate mill coming up. The mill will have card programming, but schedules will be modified by a computer according to temperature and other variables. Mill men see full computer control coming eventually.

Neodymium Takes Heat

Neodymium appears capable of increasing the heat resistance of magnesium for aircraft and missile service. It may also have use in steel and aluminum alloys. It's now being produced in industrial quantities. Experiments suggest that it's neodymium that imparts the good qualities of misch metal. Thus it's possible that neodymium alone can offer higher heat resistance without the disadvantages encountered heretofore.

How to Keep Ahead

According to studies of one of the country's largest corporations, metalworking plants need a 3 to 5 pct increase in productivity just to hold their own. To improve your competitive position you need more. The answer: improved methods through planned engineering analysis of operations, top to bottom.

Bonding Carbide to Steel

A new process joins cemented carbide to steel or other metals. An alloy in the form of a thin disk is used to make the bond. After inserting the disk between the carbide tip and steel shank, pressure of about 500 psi is applied to the joint as it's heated by acetylene torch or induction coil to 1900°-2000°F for about 1 minute. Tests show joints have rupture strength of 100,000 to 135,000 psi and are shock resistant. Alloy is self fluxing.

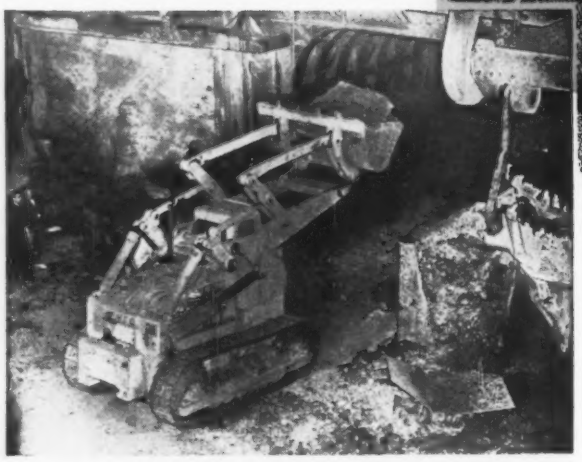
Something New in Engines

A major manufacturer of heavy-duty trucks will soon announce two new gasoline engines. The smaller of the two is of a radical design never volume produced in the U. S.—a V-6. The other, larger engine is a combination of two of the smaller type.

Contractors to Hear First

Air Force is taking action to stop premature leaks pertaining to contract terminations. Some contractors have been needlessly embarrassed because they learned of cut-backs or terminations from outside sources. Now, says the Pentagon, announcement of terminations will be made first to the contractor, then to congressmen and the press.

THE BIG E



STEEL MILL SPECIALS

Eimco produces two special machines specifically engineered and built for steel mill use.

The Eimco Model 115 is a Steel Mill Excavator with fast overhead loading action . . . the ultimate in crawler-tractor excavator maneuverability.

The Eimco Model 135 is a Steel Mill Front End Loader with greater capacity, maneuverability and tremendous break-out force.

Like all Eimcos, both machines incorporate all the exclusive Eimco engineered and developed features, that mean greater work output, less down-time, easier operator control, rugged construction.

Designed and built to handle the tough work that is part of Open Hearth Plant operation, these slag loaders can greatly reduce your costs in ground flushing or slag pocket clean out . . . with ease, speed and safety.

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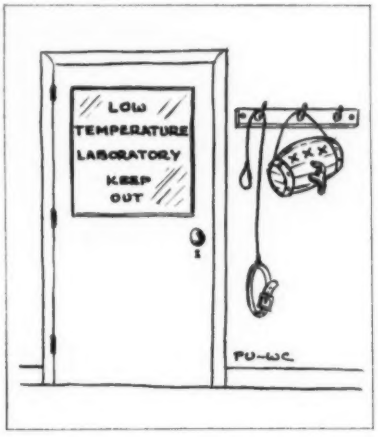
Salute Inquiry

Sir—We were interested in your April 2 Salute on Jay C. Standish of Designers for Industry, Inc.

In it you mentioned a recent development of this company: A noncontacting lineal measuring device which checks the footage of strip steel passing a fixed point without actually touching the metal.

Could you send us additional information on this device or could you send us the street address of Designers for Industry, Inc., so that we can contact them direct?—L. W. Secrest, Secrest Machine Co., Washington, D. C.

▪ Their address is 4241 Fulton Parkway, Cleveland, O.—Ed.



Tool Steels

Sir—We recently furnished you with descriptive material and service literature on Carpenter tool steels for use in the article, "How to Get More for Your Metalworking Dollar—Tool Steels," in your Apr. 30 issue. It was well done.

However, we would like to call your attention to what we feel is a serious error.

In the Comparable Tool Steel Brands section p. 121, Carpenter Vega is listed under AISI Type A4. This grade should be listed as Type A6, exactly as shown in your 27th Edition, The IRON AGE—Directory of Tool Steels.

Carpenter Vega was the pioneer in the A6 field and has many advantages over the A4 Type.—R. L. Riegel, Adv. Mgr., The Carpenter Steel Co., Reading.

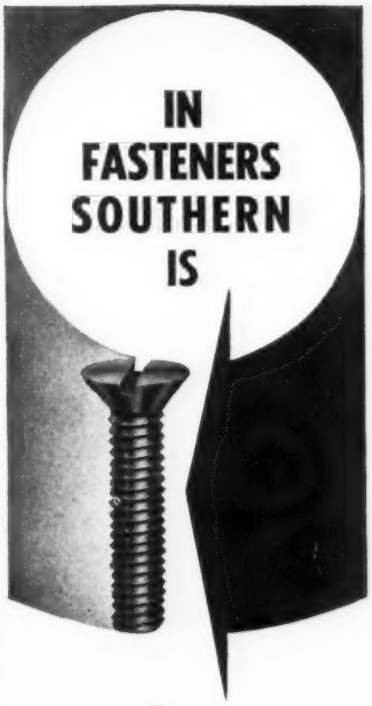
Ductile Iron (Cont.)

Sir—In regard to the discussion in recent issues of IRON AGE as to the originator of ductile iron, it may be of interest to review the work of Mr. J. E. Johnson, Jr., pertaining to oxygenated iron and its comparison with certain grades of charcoal iron.

On p. 483 of Johnson's book, "The Principles, Operation, and Products of The Blast Furnace," 1st Edition, 1918, is a photomicrograph of his oxygenated coke iron showing the "nodular condition of the graphite."

This same photomicrograph is duplicated on Plate 4, Figure F of Howe's "Metallography of Steel & Cast Iron," and he has a description on p. 224, paragraph 299, under the title, "J. E. Johnson's Process for Spheroidizing Graphite in Cast Iron" taken from p. 314, Vol. 44, 1912 Transactions of the Institute of Mining Engineers and p. 344 Vol. 50, 1914. He also refers to The IRON AGE, 1912, Vol. 89, p. 1206, and Vol. 90, p. 1375.

It is also noted that Johnson was endeavoring to secure the same properties in coke iron that were present in certain grades of cold blast charcoal iron, which was much stronger and tougher for the same chemical analysis than coke iron, and the graphite of which he found to be in the nodular form.—T. F. Baily, Newcomerstown, Ohio.



completeness

Completeness at Southern Screw starts with the placing of your order and continues through the shipment of your screws on free disposable pallets. Whether your screws are supplied from stock or manufactured to your specifications, customers know that Southern Screw's completeness includes the consistent and constant quality and service they have a right to expect. Your fastener requirements really may call for "specials" which are standard in Southern Screw's 1,500,000,000-piece stock.

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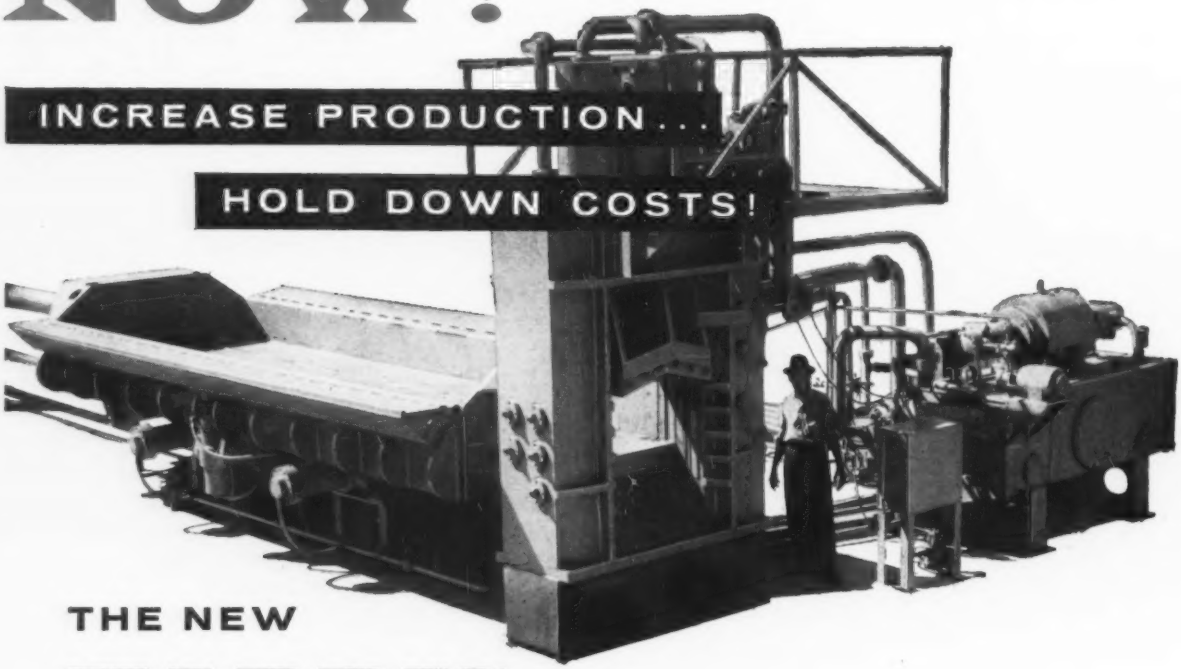
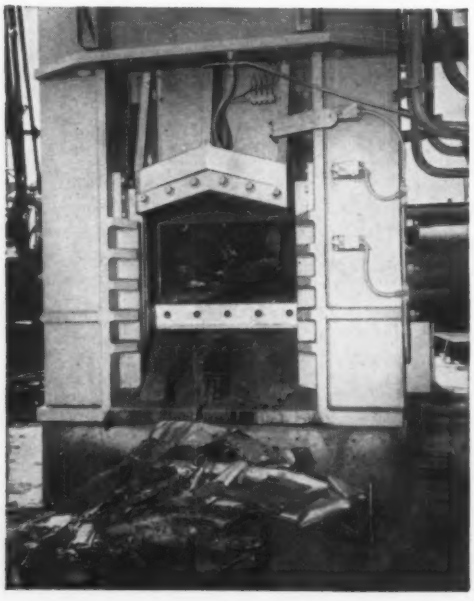


THE NEW

HARRIS BS-350 BALER-SHEAR

AUTO FRAMES and bulky scrap work through easily. The Harris Baler-Shear was designed to eliminate problems arising from the preparation of bulky scrap. It incorporates the principles of baling and shearing.



SPECIFICATIONS

size of charging box	264 x 83 x 41"
shear opening height	20"
shear opening width	36"
shear force	350 tons
floor space required	55' x 20'

HARRIS FOUNDRY & MACHINE CO.

Hydraulic Engineers Since 1889

CORDELE, GEORGIA

▶ *Talk with a Man from Harris*

Coming or Going?

Actually this model of the sleek Tempo Alcoa hydroplane is facing right. Guy Lombardo, orchestra leader and boating enthusiast, will

use the jet-propelled craft this summer in a try at a new water speed record. Current speed mark of 248.62 mph is held by England's Donald Campbell.

The Tempo Alcoa, featuring a hull sheathed in aluminum supplied by the Aluminum Co. of America, was designed and built by Les Staudacher.

Next in View

Our June 4 issue will feature a new, 24-page revised edition of the IRON AGE Metal Cleaning and Finishing Handbook. First published three years ago, the Handbook has been in heavy demand. In addition to its original circulation in the magazine about 900 requests for one or more reprints have come in.

This revised edition is timed to appear just before the important 5th Industrial Finishing Exposition in Detroit. Sponsored by the American Electroplaters' Society during its Golden Jubilee Convention, the show will be held on June 15-19. Complete information on the program and exhibitors will also be featured in next week's IRON AGE.

New Pattern

Language is quick to reflect the changing pattern of industry and science in the Space Age. Scientists now speak about astral communications as well as global communications—referring to data received from our space probes.

And here's another sign of the times. The Aircraft Industries Association is changing its name. From now on the group will be the Aerospace Industries Association of America, Inc.

Puzzler Answer

One horse, three cows and five pigs is the unanimous vote for the answer to the March 12 puzzler. And we were swamped! The winners are:

Bertha Frazey, Mound Rose Cornice & Sheet Metal Works, "The Club" — General Steel Castings Corp., M. S. Tibbetts, Jr., Bendix Aviation Corp., Arlan Walker, Burlington, Iowa., J. B. Raine, Middletown, Ohio, Arnold F. Bock, Inland Steel Company, L. Crady, Hotpoint Co., John Cashel, Kaiser Aluminum & Chemical Sales, Inc.

Ralph Levine, H & L Metal Co., Jim Mull, North American Manufacturing Co., E. L. Sweet, Standard Gage Co., Lou Wolff, American Nickel Alloy Manufacturing Corp., Stanley Rosenfeld, Hunterspoint Steel Co., Charlie Hudgins, Chemstrand Corp., Bill Moss, Chicago Auto Wrecking Corp.

W. H. Patsch, Jr., The R. C. Mahon Co., Haskell H. Hobson, Old Scratch, Inc., Laurette Antila, Applied Research Laboratories, Inc., L. A. Conrad, U. S. Steel Corp., Roddy C. Camper, Yuba Manufacturing Div., Miss Rose Lantos, Industrial Welding Company, Bennett M. Berry, George F. Blake, Inc.

For extra protection, extra wear . . .

NORTH PVC GLOVES

Good reasons!

- **Outwear** other types two to five times
- **Have** excellent pliability, afford extra comfort and dexterity
- **Chemical-resistant** PVC compound withstands almost all acids, alkalis and solvents
- **Nonaging,** nonoxidizing and nonflammable

Bring your safety rules up to date! Make sure that your employees have the best hand protection available—North PVC Gloves. Not only will they give better protection, but they'll wear and wear.

Tell us your working conditions on your letterhead and we'll be glad to send you a free pair.

JOMAC Inc.

Dept. K, Philadelphia 38, Pa.

Associated Dealers and Distributors Throughout the World

Forming this cup in the traditional manner takes five costly and time-consuming operations.

Precise metal forming simplified

PARISH ingenuity speeds production, cuts cost

The same cup . . . produced by Parish . . . takes only 2 operations through cold extrusion.

Even at its new lower cost, the Parish part is more accurate than those produced by the old-fashioned 5-step forming process. The difference is Parish experience and ingenuity . . . the ability to recognize that there's a simpler, faster, cost-cutting way to turn out high quality production in volume.

Look at the benefits! By streamlining this operation from 5 stages down to 2 . . . with the aid of the latest high-impact presses . . . Parish engineers cut the cost and time for tooling, doubled the rate of production, and delivered the parts at a new low price.

Parish facilities, ingenuity and skill may help you cut the cost of large and small parts requiring stamping, machining, heat-treating, welding, balancing and assembly.

Why not increase your margin of profit by writing Parish today? Your inquiry will receive prompt attention.

● **DANA PRODUCTS:** Transmissions • Universal Joints • Propeller Shafts • Axles • Torque Converters • Gear Boxes • Power Take-offs • Power Take-off Joints • Rail Car Drives • Railway Generator Drives • Stampings • Spicer and Auburn Clutches • Parish Frames • Spicer Frames • Forgings

P **PARISH** PRESSED STEEL

DANA Division of Dana Corporation / Reading, Penna.

COMING EXHIBITS

Material Handling Show—June 9-12, Public Auditorium, Cleveland. (Hanson & Shea, Inc., One Gateway Center, Pittsburgh 22.)

Industrial Finishing Show — June 15-19, Detroit Artillery Armory, Detroit. (Information: H. J. McAleer, 3171 Bellevue, Detroit 7, Mich.)

Instrumentation Show — Sept. 21-25, International Amphitheatre, Chicago. (Instrument Society of America, 313 Sixth Ave., Pittsburgh 22.)

Metal Show—Nov. 2-6, International Amphitheatre, Chicago. (American Society for Metals, 7301 Euclid Ave., Cleveland 3.)

MEETINGS

MAY

American Gear Manufacturers Assn.—Annual meeting, May 31-June 3, The Homestead, Hot Springs, Va. Association headquarters, One Thomas Circle, Washington 5, D. C.

JUNE

Institute of Appliance Mfrs.—Annual meeting and exhibit, June 1-3, Netherland Hilton Hotel, Cincinnati. Institute headquarters, Shoreham Hotel, Washington 8, D. C.

Wire Assn. — Regional meeting, June 4-5, Fairmont Hotel, San Francisco, Calif. Assn. headquarters, 453 Main St., Stamford, Conn.

Pressed Metal Institute—National sales conference, June 11-12, Bedford Springs Hotel, Bedford, Pa. Institute headquarters, 3673 Lee Rd., Cleveland.

Manufacturing Chemists' Assn.—Annual meeting, June 11-13, The Greenbrier, White Sulphur Springs, W. Va. Association headquarters, 1825 Connecticut Ave., N. W., Washington 9, D. C.

National Assn. of Purchasing Agents—Convention and Inform-A-

(Continued on P. 16)

SILENT HOIST LIFTRUK

9 sizes: 3, 5, 6, 7½, 8, 10, 12, 15, 30 tons capacity. Fluid Drive, Power Steering. Write for Bulletin No. 77.

shrink days into hours...

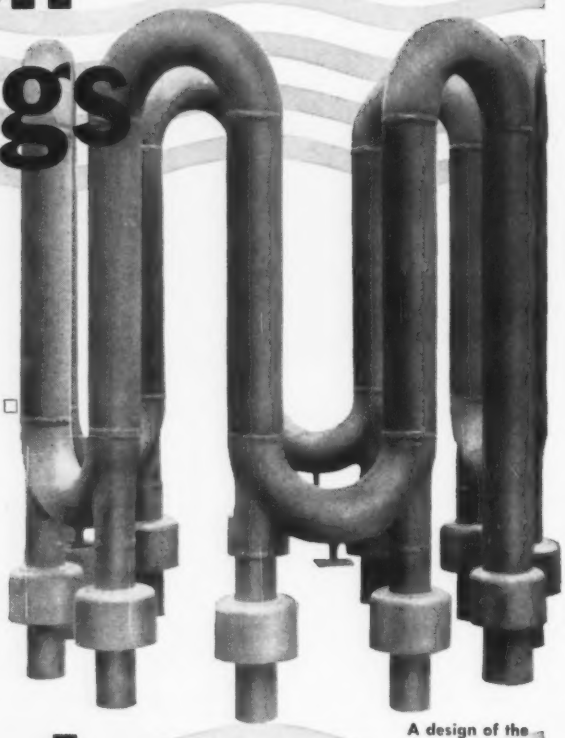
Tedious, costly work of Loading, Unloading and Stacking that take many men, many days can be compressed into a few hours . . . with just *one* man operating SILENT HOIST materials handling equipment . . . *releasing crews for other productive chores.* Costs rising? Competition rugged? SILENT HOIST may have an interesting answer for you! Details of some important case-histories will be furnished—cheerfully, without obligation.

SILENT HOIST & CRANE CO.
Brooklyn 20, N.Y.

SILENT HOIST KRANE KAR

HYDRAULIC Boom Swinging, HYDRAULIC Topping, HYDRAULIC Telescoping, HYDRAULIC Load Hoisting! Fluid Drive, Power Steering. 5 Sizes: 1½, 2½, 5, 10, 12½ ton capacities. Ask for Bulletin No. 79.

when things are HOT... call on Duraloy



A design of the A. F. Holden Co., Detroit, Mich.

Castings that Keep their Load-Carrying Strength at High Temperatures

This "immersion type radiant heater" is typical of the high reliability castings turned out by DURALOY. Centrifugally cast tubes with *UNIFORM* wall thickness...for longest service life. Static cast collars and shell molded bends...typical of DURALOY versatility.

For your high alloy casting requirements check with DURALOY... our long experience, ultra-modern foundry and up-to-the-minute test equipment will be helpful in solving your problems. For more information ask for Bulletin No. 3150 G.

The DURALOY Company

OFFICE AND PLANT: Scottdale, Pa.

EASTERN OFFICE: 12 East 41st Street, New York 17, N. Y.
ATLANTA OFFICE: 76—4th Street, N.W.
CHICAGO OFFICE: 332 South Michigan Avenue
DETROIT OFFICE: 23906 Woodward Avenue, Pleasant Ridge, Mich.

EXHIBITS, MEETINGS

Continued from P. 15)

Show, June 14-17, The Waldorf-Astoria, New York. Association headquarters, 11 Park Place, New York.

The American Boiler Manufacturers Assn. — Annual convention, June 14-17, The Homestead, Hot Springs, Va. Association headquarters, 4062 Mayfield Rd., Cleveland.

The American Society of Mechanical Engineers—Semi-annual meeting, June 14-18, Chase-Park Plaza Hotel, St. Louis, Mo. Society headquarters, 29 W. 39th St., New York.

Association of Iron & Steel Engineers—Western meeting, June 15-17, Hotel Utah, Salt Lake City, Utah. Association headquarters, 1010 Empire Bldg., Pittsburgh.

Alloy Casting Institute—Annual meeting, June 21-23, The Homestead, Hot Springs, Va. Society headquarters, 286 Old Country Rd., Mineola N. Y.

American Society for Testing Materials—Annual meeting, June 22-26, Chalfonte-Haddon Hall, Atlantic City, N. J. Society headquarters, 1916 Race St., Philadelphia.

Industrial Safety Equipment Assn., Inc.—Annual meeting, June 23-26, Point Clear, Ala. Association headquarters, 420 Lexington Ave., New York.

JULY

Truck Trailer Mfrs. Assn.—Annual summer meeting, July 13-15, The Homestead, Hot Springs, Va. Association headquarters, 710 Albee Bldg., Washington, D. C.

Metal Lath Mfrs. Assn.—Meeting, July 21-22, Statler Hotel, Buffalo, N. Y. Association headquarters, Engineers Bldg., Cleveland.

Assn. of Roller & Silent Chain Mfrs.—Summer meeting, July 22-23, Grand Hotel, Mackinac Island, Mich. Association headquarters, 3343 Central Ave., Indianapolis.

Clark *Ranger* loads a flat-bed delivery truck at yard.

Ranger is then towed to job site at 55 mph.

Truck parks while *Ranger* delivers over rough terrain.

Ranger positions material right where it's needed.

Mud or sand is no problem...neither is distance!

Slip the new *Ranger*® in 4-wheel drive and run a full load of heavy materials through mud, slush, or soft sand with no bog-down, no stoppages. Use the *Ranger* to load in your yard, drive or tow it on the highway at speeds to 55 mph . . . then use it to deliver materials over terrain that's impassable for regular highway vehicles. With the *Ranger*, you're able to spot the load right where you need it . . . even 24 feet in the air.

A *Ranger* will work anywhere . . . everywhere. In fruit groves, for example, a new type steering action enables the *Ranger* to maneuver large boxes of fruit around closely planted trees. In saw mills, block plants, steel mills . . . the *Ranger's* unique design makes yard surfacing unnecessary.

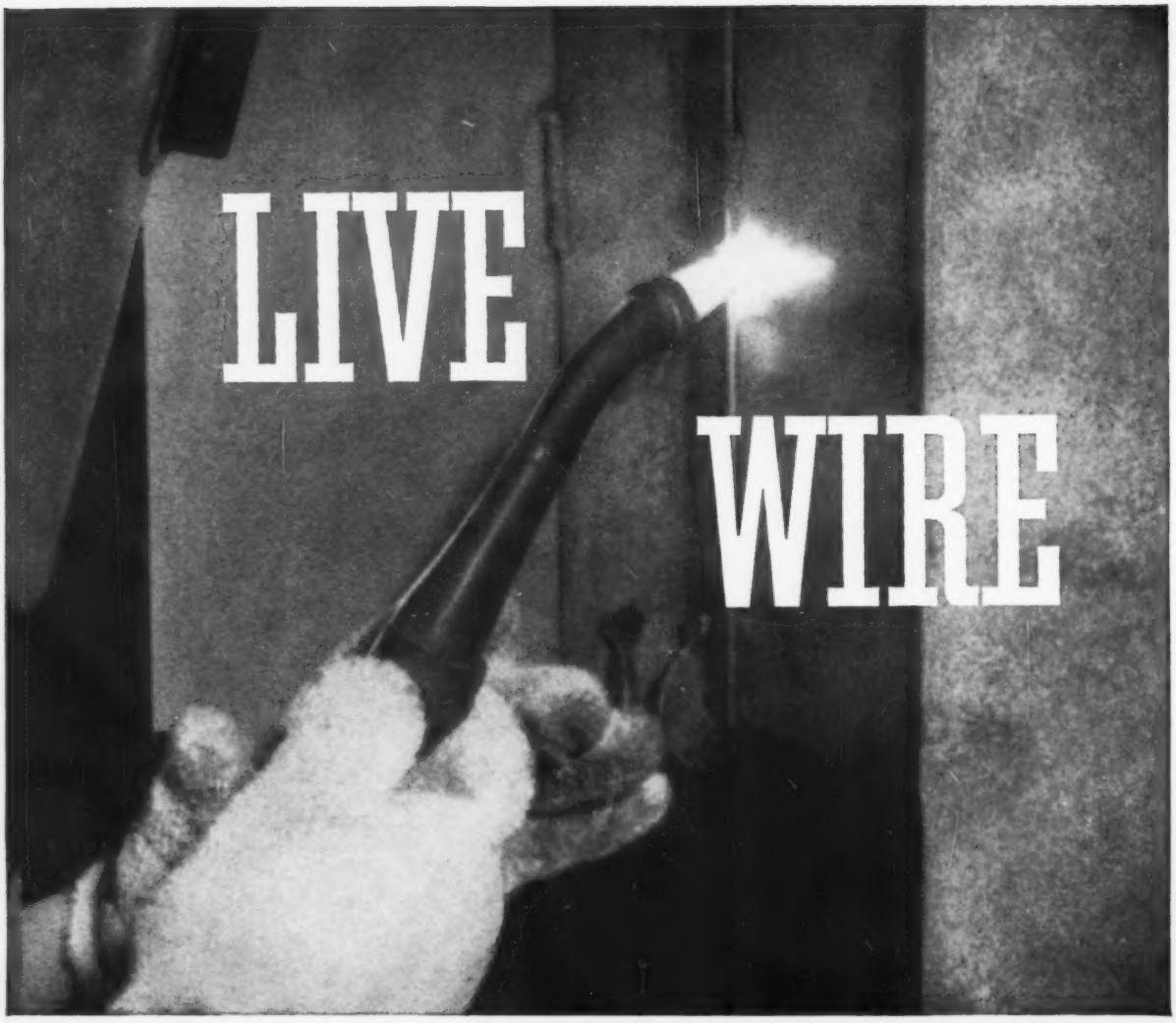
A 4,000 lb. capacity *Ranger** can climb a 43% grade fully loaded. This work-anywhere fork truck has power steering, vacuum brakes, high underclearance, high flotation, big-cleat tires... in fact it has everything needed to do the toughest jobs... under the most adverse conditions.

A special brochure and spec sheet is available upon request. For your copy write: *Ranger*, Clark Equipment Company, Battle Creek, Michigan.

CLARK® EQUIPMENT

**Also available in 6,000 lb. capacity*

ed in U. S. A.



New design in Sigma hand welding torches

Here is a new, lightweight torch—only 16 ounces—for manually welding light-gage steels. Sigma ST-2 welds in all positions with no change in control or current settings. Welds .030- to .100-in. sheet, using low-voltage short-arc technique with .020- and .030-in. hard-drawn wire. For 200 amp continuous service.

Balanced design makes handling easy. Service lines enter through rear of handle—a convenience in cramped quarters. Start-stop switch on handle, easy to reach. Nozzle has a 60° curve for maximum weld visibility.

Sigma ST-2 makes high-quality welds at high speed. Seams require no cleaning . . . distortion is at a minimum. Inert gas shielding is economical. Low flow rate—only 10 cu. ft. or less per hour—means even more savings.

Call your nearest LINDE office today for a demonstration of this new Sigma ST-2 torch! Or write Dept. I-54, LINDE COMPANY, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, N.Y. Offices in other principal cities. In Canada: Linde Company, Division of Union Carbide Canada Limited.

Linde TRADE-MARK

UNION CARBIDE

"Linde" and "Union Carbide" are registered trade-marks of Union Carbide Corporation.

designed and built by . . .

UNITED®

HIGH SPEED
5-STAND
TANDEM COLD MILL

UNITED

ENGINEERING AND FOUNDRY COMPANY

PITTSBURGH, PENNSYLVANIA

Designers and Builders of Ferrous and Nonferrous Rolling Mills, Mill Rolls, Auxiliary Mill and Processing Equipment, Presses and other heavy machinery. Manufacturers of Iron, Nodular Iron and Steel Castings and Weldments.

Offices: Pittsburgh, Vandergrift, Youngstown, Canton, Wilmington

SUBSIDIARIES: Adamson United Company, Akron, Ohio
Stedman Foundry and Machine Company, Inc., Aurora, Indiana

Automate your materials handling...
with **Jeffrey** *equipment*

Efficient, dependable Jeffrey conveying equipment is a valuable antidote for rising costs in processes where bulk materials must be moved. PERMASEAL® idlers on these conveyors mean years of usage without greasing—contribute to lower operating and maintenance costs.

Jeffrey products are available through distributors in principal cities. You'll find these men *production-conscious*, ready and willing to advise on your conveying needs. For this help, see them or write The Jeffrey Manufacturing Company, 925 North Fourth Street, Columbus 16, Ohio.

Jeffrey spiral conveyors are available in many styles for moving dry, bulk materials. Compact, they occupy minimum space. Convenient, they can be fed or discharged at any point along their length.

Components of Jeffrey bucket elevators and other conveyors can be constructed to withstand corrosive attack, assuring long life and safeguarding materials handled.

For in-plant conveying or for belts extending across country, Jeffrey PERMASEAL® idlers offer every feature essential to belt protection, dependability and long service.

CONVEYING • PROCESSING • MINING EQUIPMENT . . . TRANSMISSION MACHINERY . . . CONTRACT MANUFACTURING

JEFFREY

Nickel-Coated THOMAS STRIP Cuts Aladdin's Metal Costs 56%

Aladdin had his fabled magic lamp.

But in real life, Aladdin Manufacturing Company uses nickel-coated Thomas Strip steel to work production magic in its Minneapolis, Minn., plant.

From copper to aluminum to slit steel sheets to plain strip and finally—to cold-rolled strip steel pre-coated with nickel by Thomas Strip Division of Pittsburgh Steel Company.

That's the route followed by Aladdin's Merrill B. (Ted) Wilcox in his five-year effort to find just the right metal for use in his company's line of handsome, useful Jon-E Hand Warmers.

Thomas Strip Division has grown into Aladdin's major supplier of nickel-coated strip because:

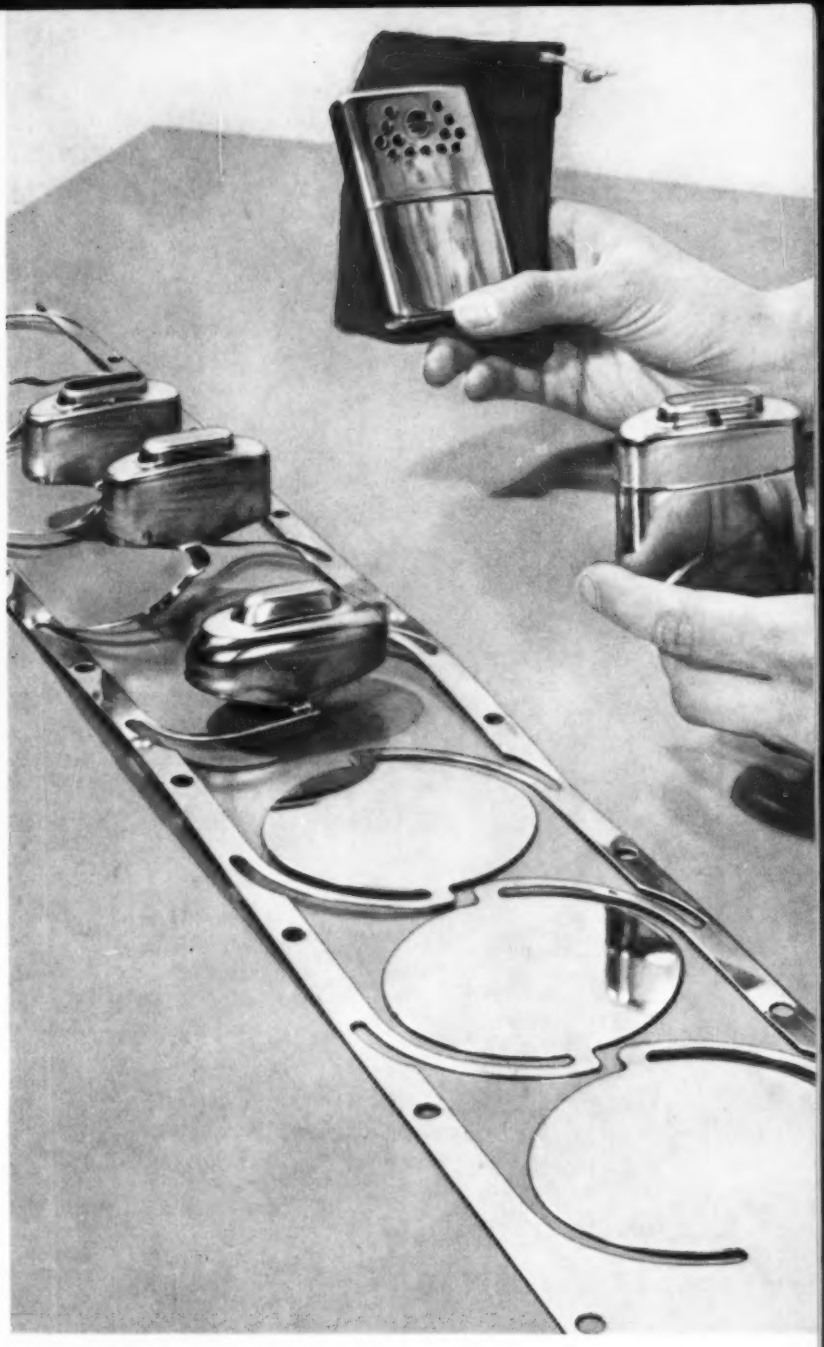
1. **Pre-coated nickel strip cut Aladdin's cost per pound of metal used from 50 cents for plain strip steel to 22 cents.**

2. **Use of nickel-coated strip enabled Aladdin to consolidate four separate production steps—each costing a cent—into a single step.**

3. **Pre-coated nickel cut scrap losses from a high of 20% (with slit sheets) to less than 1%.**

4. **Electrolytic coatings of nickel are more uniform, assuring the necessary snug fit of all Jon-E's components. And the only finishing Aladdin needs on nickel-coated strip is a quick ball-burnishing.**

All the production and design advantages of Thomas Strip are available to you. It is sold plain or electrolytically coated with copper, brass, nickel, chrome or zinc. Thomas also sells a full line of lacquered products. Call the nearest district sales office listed here. Do it today.



SIX-STAGE PROGRESSIVE die forms one Jon-E fuel chamber with every stroke of the press at Aladdin Manufacturing Company. This imposes severe demands on drawability of the 4½-inch nickel-coated steel strip supplied by Thomas Strip Division, Pittsburgh Steel Company. Aladdin credits Thomas Strip with 56% savings in metal costs, as well as sharply reduced scrap loss.

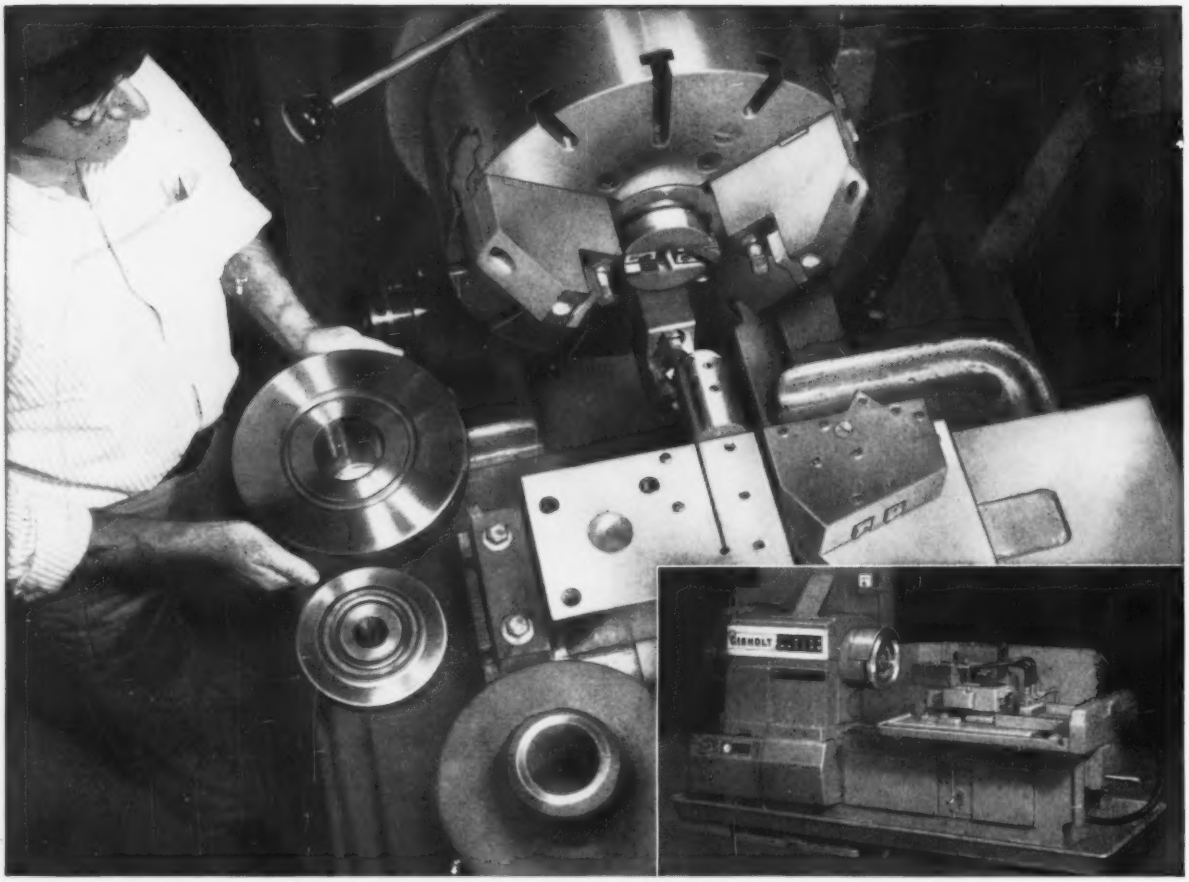
Thomas Strip® Division

Pittsburgh Steel Company

Grant Building • Pittsburgh 30, Pa.

DISTRICT SALES OFFICES

Atlanta	Cleveland	Detroit	Los Angeles	Pittsburgh
Chicago	Dayton	Houston	New York	Tulsa
			Philadelphia	Warren, Ohio



Smart planning on Simplimatic holds f.t.f. time to 1.7 min. on 6½" diam., 3.3 min. on 10¾" diam. workpieces.

How OTM Corp. cuts costs machining parts in 13 sizes

Handles each part in single chucking, using Simplimatic with back-facing attachments and two-speed motor

You may get ideas from the way OTM Corporation, Houston, Texas, machines steel welding neck flanges and welding necks—with each part in 13 different sizes—completing each part in a single chucking and holding change-over time to an absolute minimum.

Here's how the job is done on a Gisholt Simplimatic Automatic Lathe: Facing, grooving, boring and chamfering operations are performed from tools on short tool slides, with T-slotted tops for quick adjustment. Relieving the boring tool at the end of the cut eliminates tool tracks. Simultaneously, a special back-facing attachment works through the spindle to shave-face and chamfer the O.D. on the hub. A power chuck wrench operates the scroll chuck and permits mounting this attachment in the spindle bore. A two-speed motor provides correct surface speed and permits switching from high speed (for turning and facing) to low speed (for grooving operation) and back again, during the Simplimatic's automatic machining cycle.

Here, again, the Gisholt MASTERLINE Simplimatic Automatic Lathe saves a manufacturer the cost of a special machine. Its extra wide platen table provides ample space for an infinite number of slide and tool arrangements—and its table feed permits tools to engage with the work or perform additional machining operations before actual slide movements begin. Ask your Gisholt Representative to show you how the Simplimatic performs special machine functions at standard machine prices—on your product and under your production conditions.

MASTERLINE GISHOLT SINCE 1887 GISHOLT

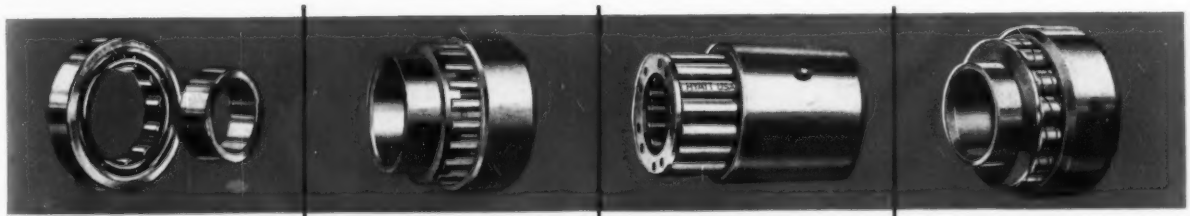
GISHOLT MACHINE COMPANY

Madison 10, Wisconsin, U.S.A.

ASK YOUR GISHOLT REPRESENTATIVE ABOUT GISHOLT FACTORY REBUILT MACHINES WITH NEW MACHINE GUARANTEE

NO BEARINGS carry radial loads like cylindrical bearings...and NOBODY knows them like HYATT

Whatever your roller bearing problem, you'll find a type to solve it in America's most complete line of cylindrical bearings—HYATT Hy-Rolls! Their greater load capacity is particularly helpful when heavy loads must be carried in cramped quarters. To save space, inner or outer races can be omitted from separable types. Shouldered-race types will also take thrust and locate heavy shafts dependably. You can *depend* on the advice of your HYATT Sales Engineer—and the bearings he recommends! Hyatt Bearings Division, General Motors Corporation, Harrison, New Jersey.



METRIC SERIES

High-capacity cylindrical roller bearings for heavy radial loads and light or intermittent thrust loads.

INDUSTRIAL INCH

Designed for slow-moving, heavily loaded machinery where large-diameter shafts are usually employed.

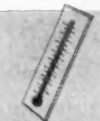
TRUNNIONED ROLLER

For industrial trucks, textile machinery, gear pumps, conveyors, hoists, agricultural equipment, etc.

WOUND ROLLER

A three-part separable bearing which provides maximum resistance to shock, abrasion and fatigue.

For Speeds up to 50,000 RPM—HYATTS are designed to meet almost any speed requirement, ranging from slow-moving construction equipment to supersonic jet engines.



For Temperatures from Below Zero to 450° F.—Conventional steels can be heat-treated for operation up to 450° F. Special high-temperature steels can be provided when required.

In Sizes from ¾" OD to 14' OD—HYATT offers a wide variety of bearing types and sizes—each quality-designed and quality-controlled to provide longer life.

For Loads up to 183,000 Lbs.—From small bearings for lawn mowers to heavy-duty types used in giant industrial cranes, HYATT builds bearings to carry any kind of radial load.

6 BUILT-IN BENEFITS: ★ Higher radial load capacity ★ Minimum space requirements ★ Omitted races are optional ★ Shaft location without sacrificing load capacity ★ Easier assembly and disassembly ★ Heavier press fits simplify retainment.

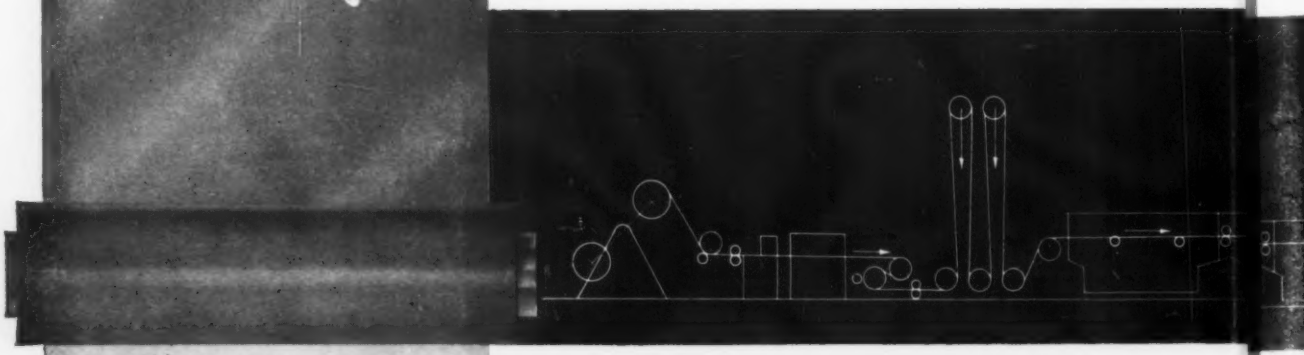
Available through United Motors System and its Independent Bearing Distributors

THE RECOGNIZED LEADER IN CYLINDRICAL BEARINGS

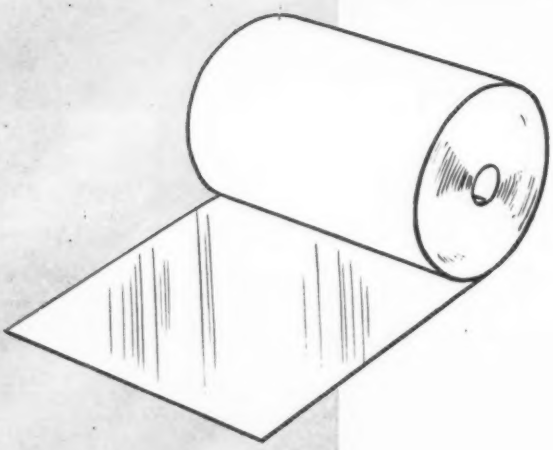
GM GENERAL MOTORS

HYATT HY-ROLL BEARINGS FOR MODERN INDUSTRY

Ross/Waldron Strip



strip coating

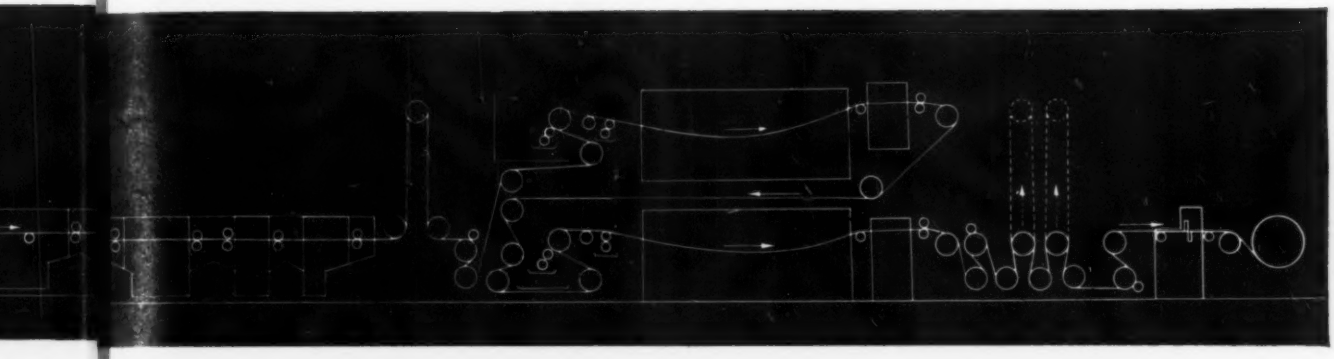


- produces a coated metal that is more uniform in its finish, more durable in its resistance, and generally capable of being subsequently cut, stamped, and formed without damage to the finish.

- adaptable with suitable modifications for *any* strip metal; the schematic drawing above is of an actual Ross/Waldron Coating Line in a well known strip mill.

ip Coating Line

- *Affiliated Engineering Staffs*
- *Joint Design Responsibility*
- *Single Procurement Responsibility*



Three manufacturing groups should seriously consider putting in a Ross/Waldron Strip Coating Line: (1) the prime producer of strip; (2) the strip coating jobber, and (3) the end-product manufacturer.

Here are the advantages:

1...precision uniform coating across entire width of strip; consistent high quality finish.

2...no waste of coating material which occurs with overspraying; roll-coating, the method used in the Ross/Waldron Line, eliminates that loss.

3...all operations controllable to the most exacting requirements.

4...wide range of coating thicknesses.

5...considerable saving in actual 'coating' floor space and in man-hours required.

6...adaptable to line-integration of additional finishing operations such as printing, embossing and laminating.

7...all auxiliary process equipment such as washing, degreasing, chemical treatments, etc., supplied as integral line components.

When you deal with Ross/Waldron on a Strip Coating Line project you are working with two groups of specialists: one, Waldron, broadly experienced in setting up complete coating systems; and the other, Ross, with many years of experience in the complementing field of metal preparation, surface coating, drying, baking and curing. Furthermore, all major processing units and mechanical auxiliaries will be to Waldron and Ross specifications, custom-designed particularly for this specialized work.

Your request for further information or for personal discussion of your strip coating plans may be addressed to either affiliate at the office nearest to you.

M-R

THE MIDLAND-ROSS GROUP OF COMPLEMENTING SERVICES

J. O. Ross Engineering, New York
John Waldron Corporation, New Brunswick, N. J.
Andrews and Goodrich, Boston
Ross Engineering of Canada Limited, Montreal
Ross Midwest Fulton, Dayton
Hartig Extruders, Mountainside, N. J.
Carrier Ross Engineering Company, Ltd., England

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JOHN WALDRON CORPORATION

Subsidiary of Midland-Ross Corporation
NEW BRUNSWICK, NEW JERSEY
Mount Prospect, Illinois

Man's Eternal Struggle with the Machine

COMPETITIVE PRESSURES AND RISING COSTS DEMAND GREATER PRODUCTION EFFICIENCY THAN EVER BEFORE

How do you know you're making your product right?

Rather curious question, isn't it! But before you laugh it off, take a good look at what's happening on your production line. There's more processes using manufacturers than there are manufacturers using processes.

What you're looking for is efficiency. Lack of it costs money. The kind *you* pay in overhead, competitive advantage, rejects, rework operations, etc.

For example—consider your resistance welding . . .

How many spot welds are you using to assemble the piece parts of your product? . . . as many as will fit in the space? . . . enough to "be sure" it will hold? . . . or as many as *really required!* No matter how you figure it, the first two cost too much money. Because they require either too much equipment or too much time. Usually both!

Many manufacturers use resistance welding for speed. Weld integrity (which, incidentally, does not necessarily penalize speed) is often overlooked. In order to make up for lack of weld quality, more welds are used. But fifty poor welds aren't any better than fifteen poor welds. They just cost more. Particularly when five *welds of suitable quality* will do the job!

Sciaky knows that weld efficiency is a matter of combining quality with speed. That's why Sciaky equipment is precise enough to produce consistently. Once suitable quality is established, you can depend on it throughout the toughest production conditions.

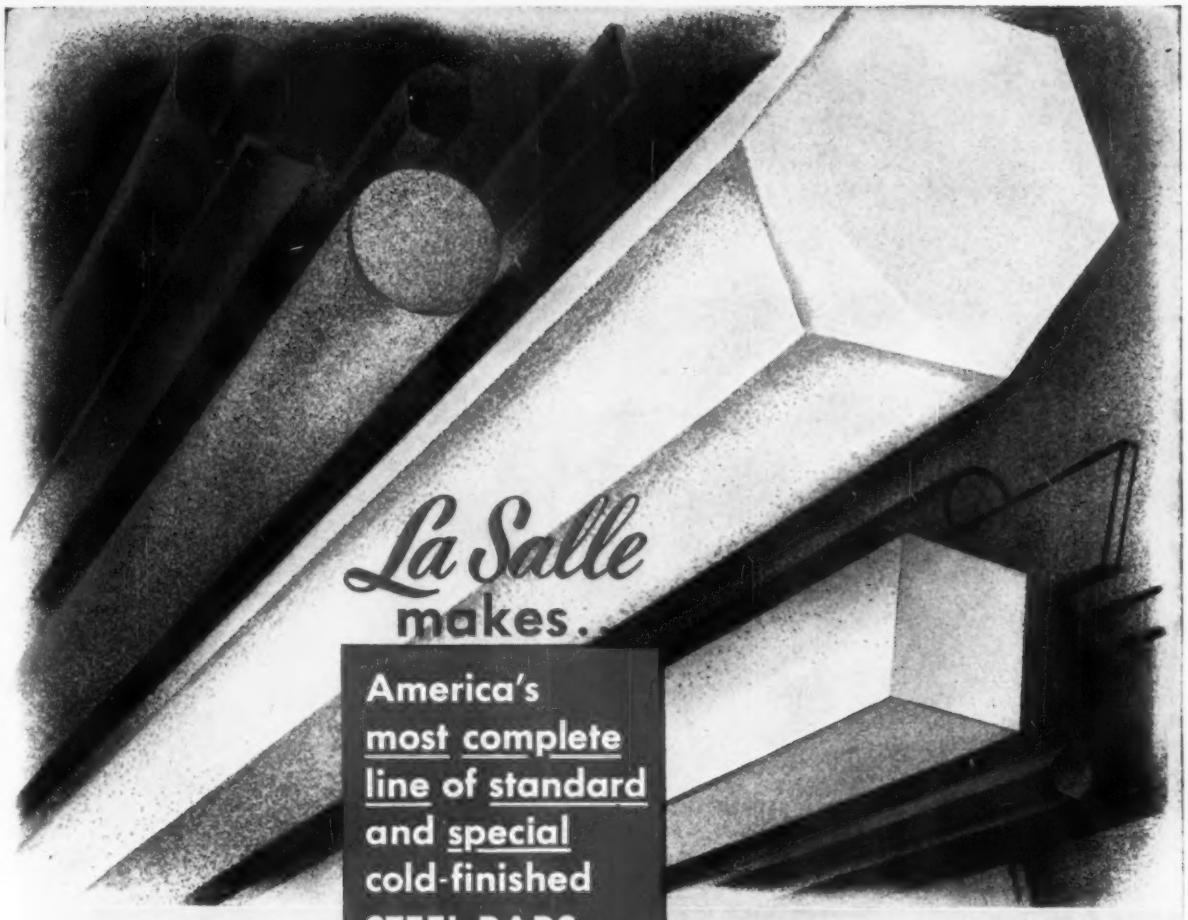
Why take less than the full advantage of consulting with a Sciaky Application Engineer the next time you're considering equipment. No obligation, of course.

The manufacturers of automobile wheels took that advantage. As a result those wheels are now being assembled with eight suitable quality welds instead of twelve rivets. Automatically. Four other operations have even been included. As a result, the wheels are better, and made faster at lower cost.

SCIAKY

74A

SCIAKY BROS., INC., 4923 W. 67th STREET, CHICAGO 38, ILLINOIS • POrtsmouth 7-5600



Rounds . . flats . . extra wide flats . . squares . . hexes. Always available in a full range of popular standard sizes and lengths.

Cold-drawn . . turned and polished . . ground and polished. Exceptional size accuracy, straightness, concentricity, and uniformity. Produced to standard or special tolerances.

Carbon and alloy steels. La Salle produces a broad line of high quality cold-finished steel bars in AISI and SAE carbon and alloy grades.

Screw machine steels. For improved machinability and increased production, La Salle offers the finest lead treated or resulphurized steel bars.

Furnace treated steels. Careful furnace treatment develops required physical properties through quenching and tempering. Annealing improves machinability.

—AND THESE EXCLUSIVE SPECIALTY STEEL BARS:

FATIGUE-PROOF® . . produced by "e.t.d."® (Elevated Temperature Drawing) process. Guaranteed 140,000 psi minimum tensile. Fast machining. No heat treating necessary.

STRESSPROOF® with copper . . contains copper for improved machinability and other properties. Guaranteed yield, 100,000 psi in all sizes.

LA-LED® . . a lead bearing, fast machining steel. Machines twice as fast as B-1112 . . 45% faster than B-1113. Excellent ductility . . sounder cross section. Permits better carburizing. .

Super LA-LED® . . fastest machining steel ever commercially developed. Ideal for parts which previously could be machined economically only from brass. Excellent ductility and carburizing qualities.

Ask for any or all of these reference materials on La Salle cold-finished steel bars

La Salle STEEL CO.
1436 150TH STREET
HAMMOND, INDIANA

Please send the following literature:

- ☐ *How to make your own machine and repair parts quicker and easier*
- ☐ *Wall chart listing 241 AISI grades of cold-finished steel bars*
- ☐ *La Salle Leaded Steels*
- ☐ *A new material . . (the story of FATIGUE-PROOF steel bars)*
- ☐ *Today's Improved La Salle STRESSPROOF steel bars*

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*Title*_____

*Company*_____

*Street*_____

*City*_____ *Zone*____ *State*_____

R/M RAY-MAN CONVEYOR BELT LASTS LONGER . . . CUTS HANDLING COSTS

Ray-Man is a heavy duty conveyor belt that has easy troughability and cushioned strength members to handle fuller, heavier loads. Special Double Compensation provides bending stress-relief of its outer plies when flexing around pulleys. Ray-Man troughs and trains better—even when empty—because its high degree of lateral flexibility assures complete center roll contact . . . for both standard 20-degree idlers and the new 45-degree idlers with their increased load-carrying capacity! Ray-Man *requires no breaker strip*, withstands shock loading, and holds fasteners better than other constructions. Raybestos-Manhattan's exclusive "XDC" Cover adds a degree of protection against wear, tear, cuts and abrasion never before possible.

Like all Raybestos-Manhattan heavy duty belts, Ray-Man is moisture resistant and mildew-proof. Other types are available for heat, oil, static resistant uses—for package and table-top installations. Ask your R/M representative about Ray-Man and other R/M feature conveyor belt constructions. Write for Bulletin M302.

STRESS-RELIEF OF OUTER PLIES MEANS LONGER BELT LIFE... "More Use per Dollar"

CONTROLLED PLY ELASTICITY

Note how Double-Compensation at right equalizes ply stresses.

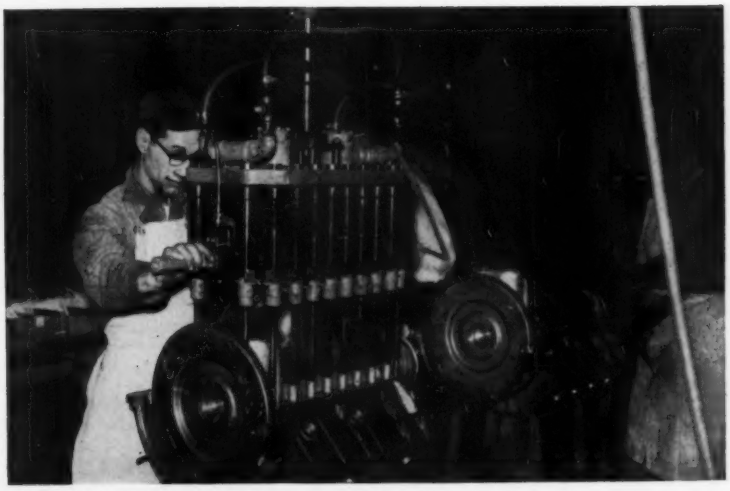
1. Center plies on neutral axis and better protected carry more load.
2. Outer plies stress-relieved by adjusting to tension and compression.

INDUSTRY'S *ONLY* COMPENSATED BELT

Ray-Man Compensation relieves outer ply stress . . . allows outside ply to elongate more than inner plies as the belt flexes around the pulleys. Inner plies no longer "loaf", but carry full share of the load.

Outer ply is better able to absorb strain and impact of loading, pull as a strength member, *protect* the inner plies, hold fasteners or splice longer.

And, because Ray-Man is *double Compensated*—both top and bottom plies stress-relieved—Ray-Man Compensation prolongs belt life, even where operated over reverse bend, snub or take-up pulleys!



HOMOFLEX HOSE—FLEXIBLE AS A ROPE

Strong, yet light in weight and "flexible as a rope". Homoflex Hose is the easiest handling hose made. Types for air, water, and other fluids and gases. Mandrel-made *without* pre-set twist, Homoflex coils and uncoils freely in any direction without kinking. Homogeneous tube-to-cover bond prevents separation under the most severe conditions of use. Uniform inside and outside diameters assure easier, faster, *safer* coupling. Homoflex cuts costs because it does a better job . . . and it lasts longer. Write for Bulletins M694 and M610.

R/M POLY-V® DRIVE—MORE POWER IN LESS SPACE

Patented, new Poly-V* Drive features a single, endless parallel V-ribbed belt running on sheaves designed to mate precisely with the belt ribs. Highest horsepower capacity per inch of drive width permits Poly-V to deliver up to 50% *more* power in the same space as a multiple V-drive—or *equal* power in as little as ⅔ the space! Single unit belt design eliminates V-belt "length matching" problems . . . assures constant belt speed ratios from *no* load to *full* load for the smoothest running, coolest running, longest wearing drive you can install. Just *two* belt cross sections meet every heavy duty requirement! Write for Bulletin M141.

WHEN YOU CHANGE DRIVES, CONVERT TO RELIABLE R/M POLY-V

*Poly-V is a registered Raybestos-Manhattan trademark. Patented.

RMD18

BELTS • HOSE • ROLL COVERINGS • TANK LININGS • INDUSTRIAL RUBBER SPECIALTIES

MANHATTAN RUBBER DIVISION — PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

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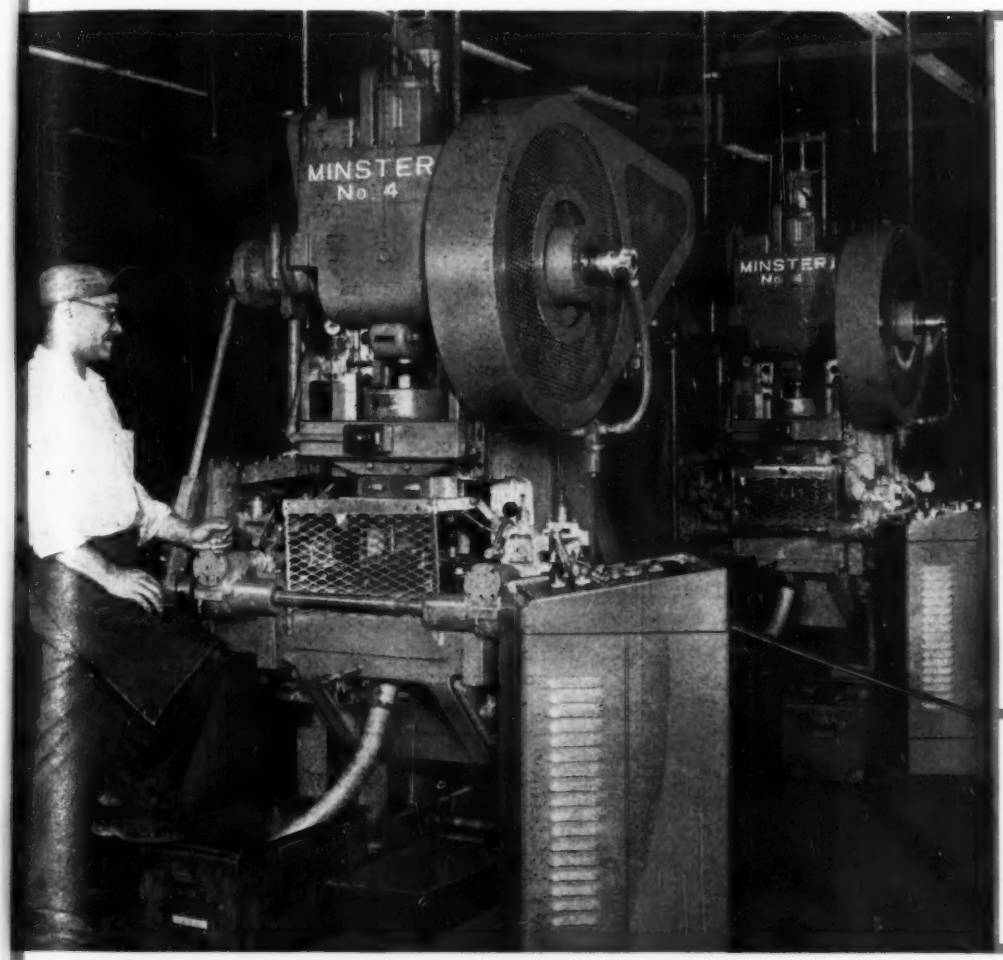
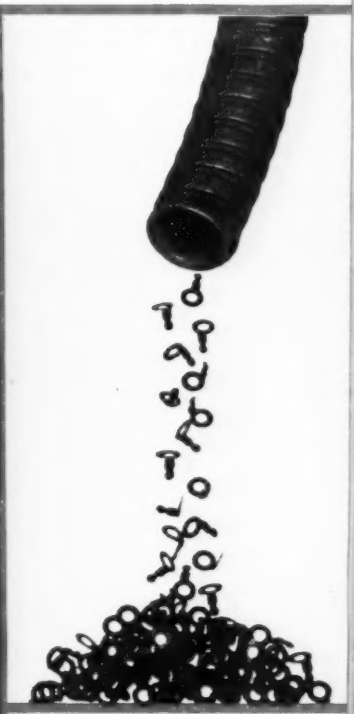
AUTOMATIC PRODUCTION

gives you maximum press efficiency, less handling





Minster O.B.I.'s ranging from 12 to 110 tons capacity give superior performance on automatic production because of close bearing clearances, heavy, rigid frames, precise gib fitting and fast controlled action of the Minster clutch and brake.

Photos courtesy of Automatic Electric Company, North Lake, Illinois.

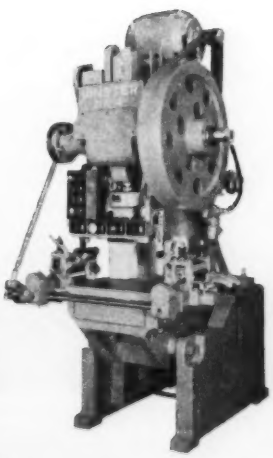
Minster Feed Equipped O.B.I. Presses

Costs decline rapidly when stampings are produced automatically. Speeds are higher, parts more accurate, presses run at top efficiency.

Automatic production . . . long or short run . . . is *most* profitable when done on a Minster press because every Minster press has the inherent precision and stability needed for this type of work.

Minster can provide the right press equipped with job-matched feed to assure you of maximum productivity and savings.

Want to investigate the possibilities? Write or call us today.



The Minster Machine Company • Minster, Ohio

MINSTER®

REPUBLIC GALVANNEALED SHEETS prevent rust problem in dehumidification systems

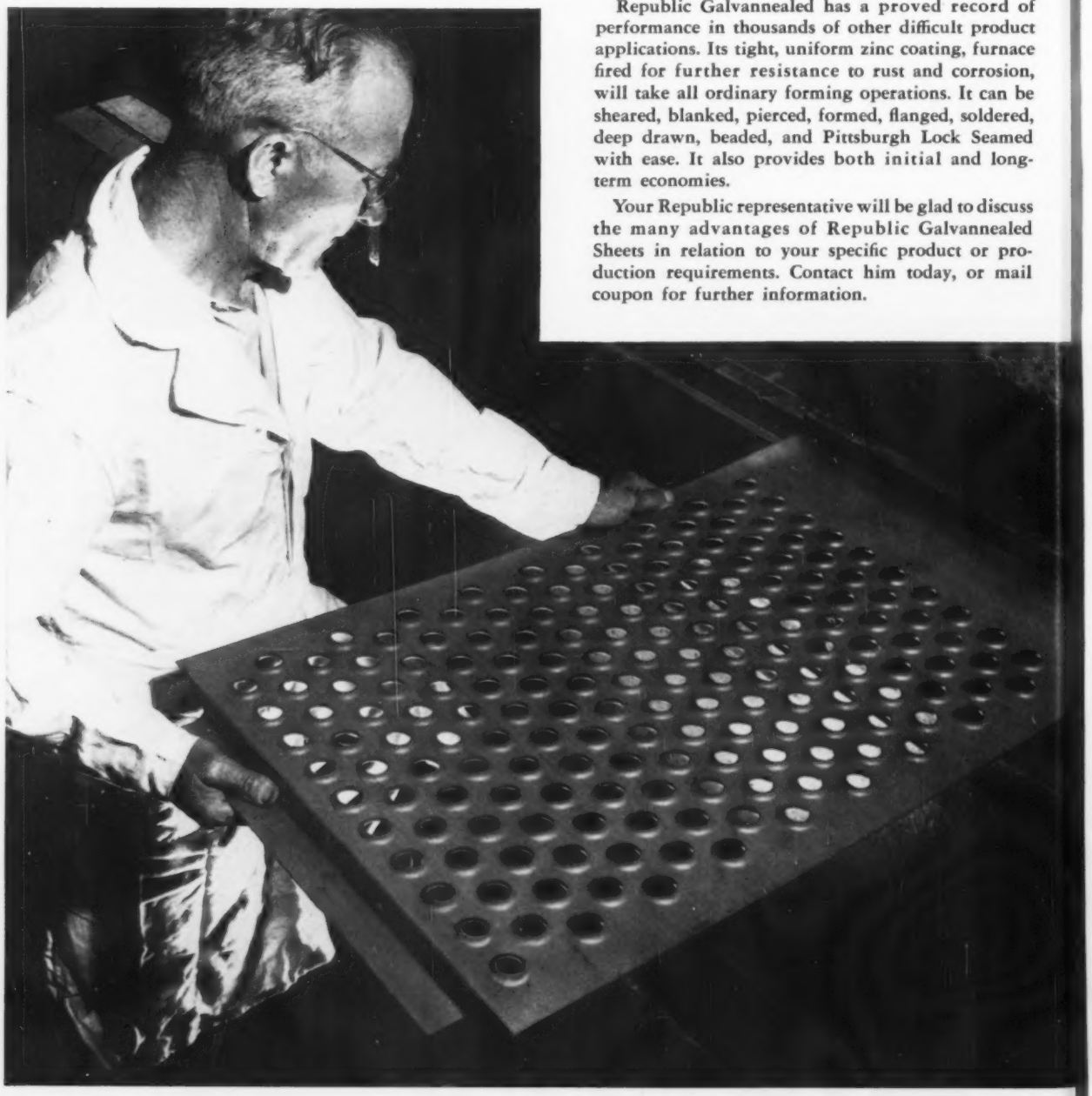
Units designed to raise or lower the relative humidity of the air, operate through the evaporation or absorption of moisture. These processes naturally require careful choice of materials to prevent formation of rust within the units.

The Air Conditioning and Drying Division, Surface Combustion Corporation, Toledo, Ohio, has solved the problem of corrosion in KATHABAR® units of its manufacture through use of Republic Galvannealed Sheets for coil tube sheets. These tube sheets are punched and extruded, then flanged, to provide for insertion of the finned tubing.

Surface Combustion Corporation is highly satisfied with Republic Galvannealed because it easily takes all these forming operations, and still provides dependable strength and long, reliable service, with rust problems held to an absolute minimum.

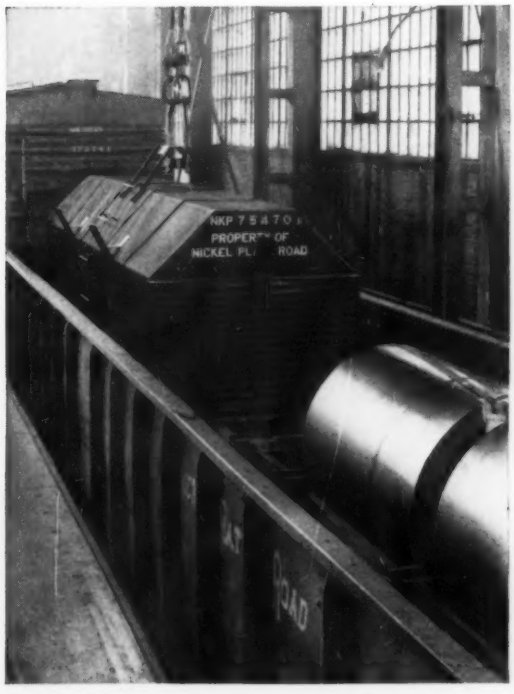
Republic Galvannealed has a proved record of performance in thousands of other difficult product applications. Its tight, uniform zinc coating, furnace fired for further resistance to rust and corrosion, will take all ordinary forming operations. It can be sheared, blanked, pierced, formed, flanged, soldered, deep drawn, beaded, and Pittsburgh Lock Seamed with ease. It also provides both initial and long-term economies.

Your Republic representative will be glad to discuss the many advantages of Republic Galvannealed Sheets in relation to your specific product or production requirements. Contact him today, or mail coupon for further information.



REPUBLIC NYLOK® STUDS solve fastening problem for Gravely Tractors, Inc., Dunbar, West Virginia. Problem: Find a dependable fastening method for tractor-attached rotary cultivators. Fastener must withstand constant shocks and pounding of rotary cultivating. Solution: Use Republic Nylok Studs. A special nylon insert assures positive locking at any position, even under severe shock, vibration, tension. Prevents all play. Utilizes metal-to-metal contact of opposing threads for locking. Republic Nylok Fasteners—studs, nuts, cap screws—resist heat, cold, moisture. Can be re-used. Mail coupon for full facts.

REPUBLIC COLD DRAWN ALLOY BARS SOLVE KING-PIN PROBLEM in White Motor Trucks. In maintaining the safety of these trucks, their drivers, and the millions of dollars worth of merchandise they carry each year, White produces critical king pins of 1⅞" round Republic 8620 Alloy Cold Drawn Bars. Republic Cold Finished Alloy Steels are available in every standard analysis, plus many specials. For further information, mail coupon.



REPUBLIC COIL COVERS PREVENT WEATHER DAMAGE in shipping steel coils by rail. In addition to providing excellent weather protection, Republic Coil Covers shut out dirt, stop vandalism, eliminate costly replacement of short-lived tarpaulins, and eliminate need for paper wrappings. Republic Coil and Car Covers are 22 feet long, 6 feet high. Two covers are used with each 52-foot gondola car, easily handled by overhead or trackside crane. Designed for stacking. Send coupon for more shipping protection facts.

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World's Widest Range of Standard Steels and Steel Products

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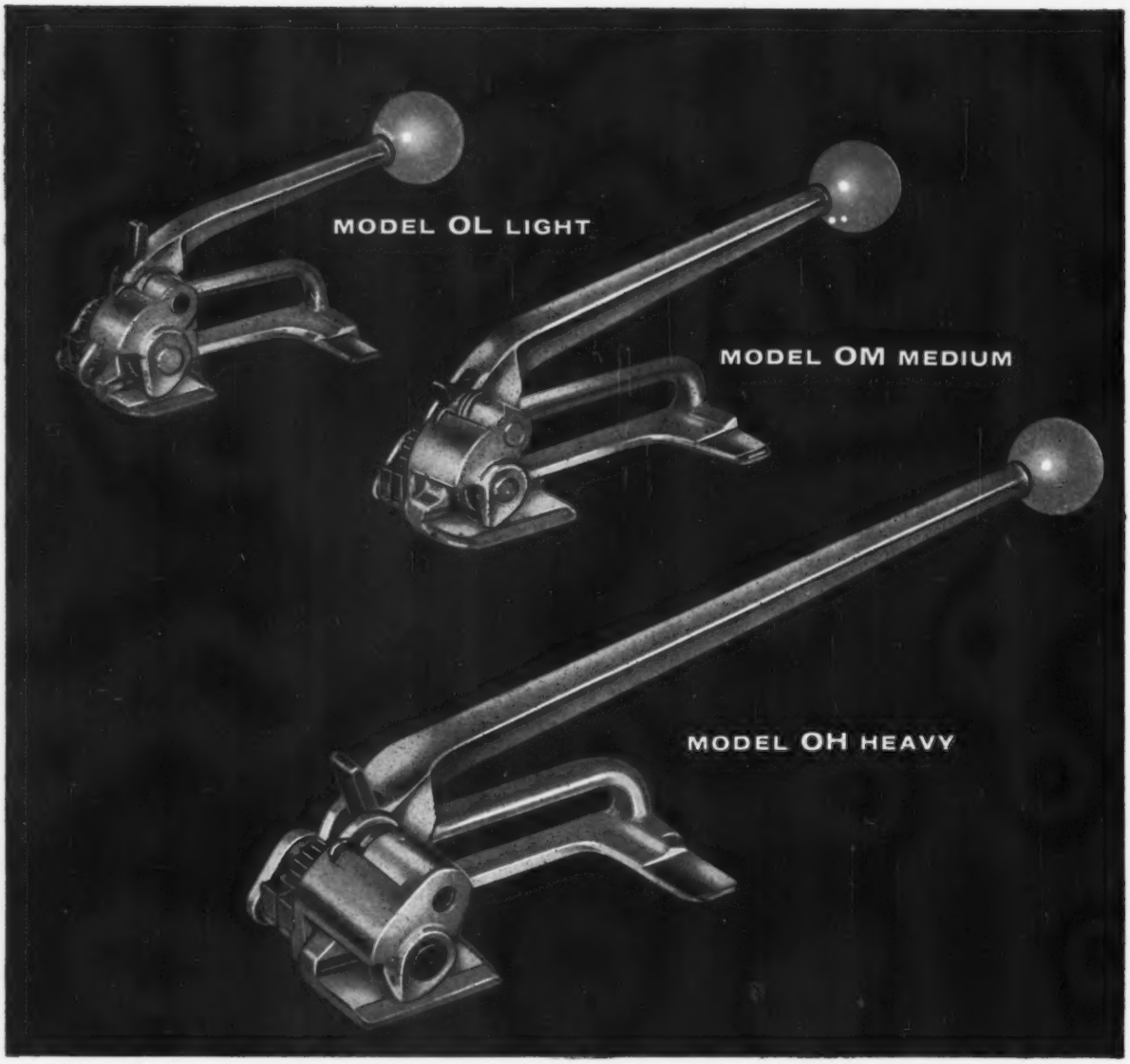
☐ Galvannealed Sheets ☐ Nylok Fasteners
☐ Cold Finished Alloy Steels ☐ Coil-Car Covers

Name_____ Title_____

Company_____

Address_____

City_____ Zone____ State_____



New Heavy Duty Steel Strapping Tool completes STANLEY Line of "O" Tighteners

Stanley's new OH Tightener is the only heavy duty friction wheel steel strapping hand tool on the market today for use with cold rolled ¾" and 1¼" x .031 and .035 steel strap. This portable, lightweight, high leverage tightener efficiently packages products and containers of every type, size, shape and weight . . . increasing packaging flexibility. Seals applied behind the tensioning wheel eliminate strap waste.

Strapplication Data available from Stanley Steel Strapping, Division of The Stanley Works, Dept. E, 1317 Corbin Ave., New Britain, Conn.

INSURE IT–SECURE IT WITH STANLEY STEEL STRAPPING

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • builders and industrial hardware • drapery hardware • door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany.

life-long beauty with effortless cleaning— means bright sales picture

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STAINLESS STEELS

Treasured are the household items made of lustrous stainless steel. They shine *with a wipe* and keep their high quality appearance in everyday service . . . dishwasher detergents cannot mar their distinctive beauty. Markets for these items are ever-expanding, creating a brighter and brighter sales picture for manufacturers.

For Stainless Steel that provides ease of fabrication and fine finish—made to your exact specifications—specify Uniloy.

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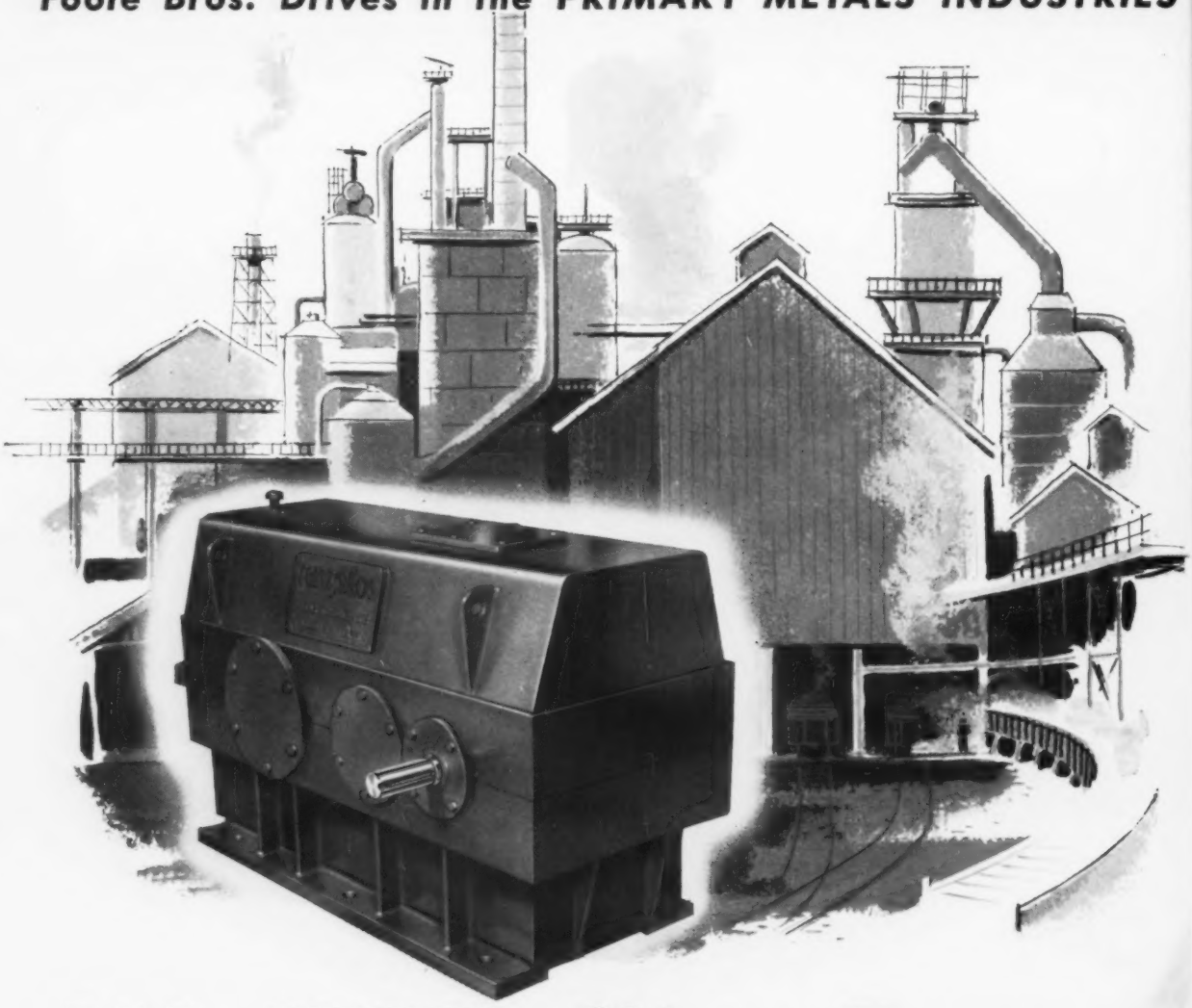
STAINLESS STEELS • TOOL STEELS • HIGH TEMPERATURE METALS

Foote Bros. Drives in the PRIMARY METALS INDUSTRIES



ALL STEEL *Maxi-Power...*

maximum performance drive in a tough steel housing

Add a functionally designed and carefully engineered, high strength fabricated steel housing to the basic heavy duty Maxi-Power Parallel Shaft Helical Gear Drive components, and you get a unit that is capable of resisting severe external impact, in addition to delivering maximum performance.

Maxi-Power Drives are found in the Primary Metals Industries wherever power demands are heavy, and operating conditions require the ultimate in strength, stamina and efficiency.

The heavy, precision machined steel bed of these drives keeps broad faced helical gearing in precise alignment to provide a smooth, overlapping mesh with close backlash tolerances. Tooth deflection is uniform under the heaviest loads. Heavy duty anti-friction bearings are conservatively rated to handle severest shock loads.

Maxi-Power Drives are available in nine combinations of shaft assemblies to permit a variety of gear drive arrangements between the prime mover and driven equipment. Maxi-Power Drives are available in Single, Double, and Triple Reductions. Standard Ratios are from 2.08 to 1 and up to 360 to 1. Capacities to 1550 HP.

Why not get the complete story on Maxi-Power soon? Write for Engineering Manual MPB and full details on the All Steel Drive today.

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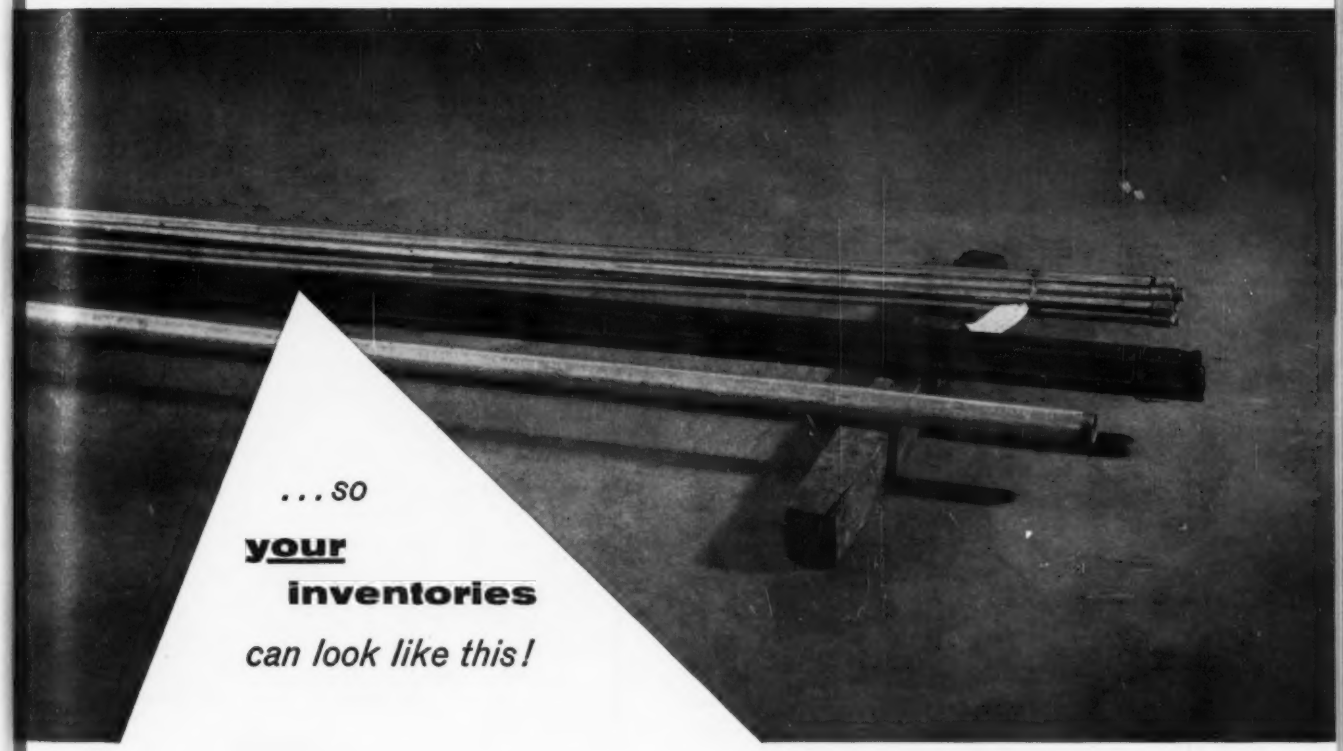
Photos courtesy of The Universal Valve & Fittings Company



To cut inventory costs, make Youngstown's Industrial Supply Distributor your local dependable source for all steel pipe needs. Make full use of his complete local stocks, fast delivery service. His one-source service simplifies your purchasing and bookkeeping, too. You'll find him an efficient, time-saving, partner-in-production.

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Modern "cold" cleaning is easy, less costly

IN ONE FAST, EASY OPERATION, Houghto-Clean "Cold" Cleaners remove shop dirt and cutting oil—do *not* affect paint. These safe, long-lasting cleaners eliminate costly multi-stage cleaning, operate without foam and fumes. Heat generating equipment is not needed, shops stay cooler, parts handle more comfortably.

Houghton's Full Line of Cleaners

In addition to Houghto-Clean room temperature Cleaners, modern Houghton chemistry is producing a complete line of cleaners to speed and simplify the full range of industrial metal cleaning.

Call the Houghton Man in your territory for practical, cost-cutting recommendations for your particular cleaning requirements.

Write for the new booklet, "Metal Cleaning Compounds by Houghton" which describes all these and more, made to serve you. E. F. Houghton & Co., 303 W. Lehigh Ave., Philadelphia 33, Pa.

CHECK YOUR CLEANING NEEDS AGAINST THESE MODERN HOUGHTON CLEANERS

- ☐ **Room Temperature Cleaners . . .** Houghto-Clean 400 Series
- ☐ **General Purpose Tank Cleaner . . .** Houghto-Clean 240
- ☐ **Power Washers . . .** Houghto-Clean 205 or 270
- ☐ **Aluminum . . .** Houghto-Clean CS
- ☐ **Emulsion Cleaner . . .** Houghto-Clean 220
- ☐ **Salt Bath Cleaner . . .** Houghto-Clean 245 and/or Cerfak Liquid
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MODERNIZE CHOOSE HOISTS THAT SAVE THE MOST

You name the hoisting problem. Whatever the requirements, there's an MMM hoist to handle your lifting with money-saving efficiency. Call your nearby Shaw-Box Distributor for practical help in selecting the best type of hoisting equipment for each load handling task. Or, write us for literature.

AIR HOISTS

Load Lifter Air Hoists with wire rope load line. 1 to 15 tons. The 5-cylinder radial motor has a high starting torque; provides smooth operation at all lifting speeds. Speeds infinitely variable to 37 FPM, depending upon capacity. Pendant cord control standard; throttle control available. Mechanical load brake never needs adjustment. Compact design results in low headroom advantages. Lug, push trolley and hand-geared trolley suspension.

Budgit Air Hoists. ¼, ½ and 1 ton. Compact and light in weight. Link and roller chain types. Explosion proof motor cannot burn out. Spark and corrosion resistant link chain type models. Speeds infinitely variable to 75 FPM, depending upon capacity. Pendant cord control. Safety hooks standard. Rigid mount type and push trolley available.

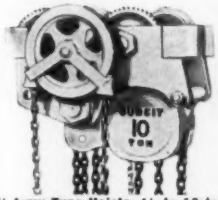
ELECTRIC HOISTS

Load Lifter Series "700" Wire Rope Electric Hoists. ½ to 15 tons. Fast, heavy-duty hoists with two automatic brakes and safe 24-volts at the push-button control. Two-speed models for spotting fragile loads safely. Lug suspension and push, hand-geared and motor-driven trolleys available. Hi-hook model increases length of lift.

Load Lifter Series "600" Wire Rope Electric Hoists. ½ and 1 ton. Low headroom construction. Tough, light-weight hoists that speed production processes. Separate load and motor brakes act simultaneously. Single and two-speed models with 24-volt push-button stations. Lug or hook suspension; push and motor-driven trolleys available.

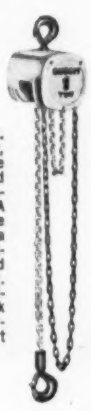
Budgit Electric Hoists. ⅛ to 2 tons. Complete, low-cost hoists for fast load handling service. Come ready to hang up, plug in and operate. Use little electricity. Pendant cord control standard. Separate motor and load brakes act simultaneously. AC, DC and 12-volt battery-operated models. Hook suspension. Trolleys available.

HAND HOISTS



Budgit Army Type Hoists. ¼ to 10 tons. Integral push, hand-geared trolleys are adjustable to fit I-beams in a number of sizes. Low headroom design permits high hook lift. Efficient spur gearing and load brake speed hoisting action. Extensive use of strong aluminum alloys saves weight and reduces effort needed to travel the hoist. Spark and corrosion resistant models available.

Budgit Chain Blocks. ¼ to 10 tons. Light, tough aluminum frame seals in spur-geared mechanism and automatic load brake. A 25-lb. pull on the hand chain lifts a 500-lb. load. Fast acting brake speeds and simplifies lowering. Hook suspension. Trolleys available. Ask about spark and corrosion resistant models.



Tugit — the Lever-Operated Hoist. ¾ to 3 tons. A spur-geared, light-weight lifting and pulling tool you can carry around. Has a thousand and one uses. Operates easily at any angle, even in close quarters. A 42-lb. pull on the handle lifts 2 tons. Spark and corrosion resistant models.

Budgit Differential Hoists. ¼, ½ and 1 ton. A durable, low-priced lifting tool for occasional use where high efficiency is not required. The aluminum alloy yokes assure both lightness and strength. Precision machining makes operation easy and compactness saves headroom.

Budgit Roller Chain Block. ¼ to 2 tons. Spur-geared for highest efficiency. A pull of 45 lbs. on the hand chain lifts ½ ton. Light and strong. Mechanism enclosed in sealed housing — operates in grease. Automatic brake holds load safely at any desired point.

Budgit Trolleys. ¼ to 2 tons. Travel the hoist smoothly on ball bearings. Adjustable to fit I-beams of several sizes. Spark and corrosion resistant models.

Budgit Hi-Cap Trolleys. 3 to 20 tons. Adjustable push type. Wheels have crowned treads for easier movement, longer wear. Bumpers protect wheels. No lubrication required. Spark and corrosion resistant models.

Budgit Geared-Type Trolleys. 3 to 20 tons. Adjustable to fit 8" to 24" I-beams. Easy action geared drive wheel and guide are weatherproof aluminum alloy. Hand chain is cadmium plated. Spark and corrosion resistant models.

Budgit Cord Reel. Keeps hoist conductor cord out of the way. Reels off in any direction. Also useful for portable tools with polyphase motors to 7½ hp.; single phase to ½ hp.

Budgit Conductor Cord Trolley. Used in any number to hold hoist or other conductor cord aloft on monorail systems and crane I-beams.

Budgit Gantry "A" Frames. 1 and 2 tons. For low-cost mobile lifting service. Caster equipped. Shipped knocked down. Easy to assemble with I-beam purchased locally.

59L-4

MAXWELL MM&M MANNING & MOORE INC. TRADE MARK

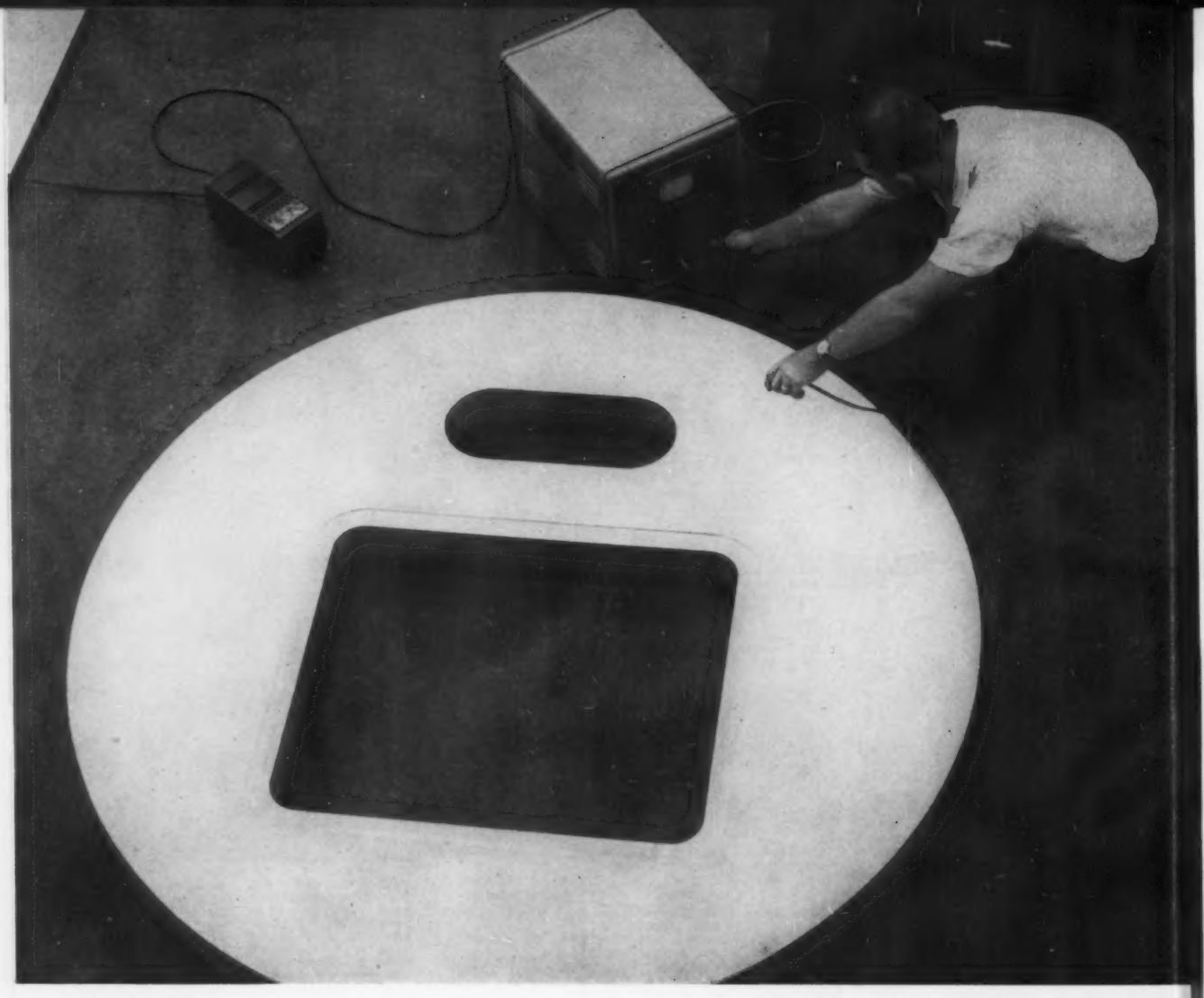
OVERHEAD LOAD HANDLING EQUIPMENT

Products of

MANNING, MAXWELL & MOORE, INC.

Shaw-Box Crane & Hoist Division • Muskegon, Michigan

In Canada: Manning, Maxwell & Moore of Canada, Ltd., Galt, Ontario



"test soundings"

. . . prove the soundness of Carlson stainless steel plate

"HEAVING THE LEAD" may be the traditional way to keep a boat off the shoals, but modern sound wave instruments do it faster and better. And, for a very different reason, modern sound wave devices are used to assure quality stainless steels. Carlson was one of the first producers to use ultra-sonic equipment for testing heavy gauge stainless plate.

In ultra-sonic testing, sound waves take a penetrating look inside and positively determine structural quality. A complete report on the results of the test is supplied to the customer. By specifying ultra-sonic tested plate, builders of aircraft components and nuclear equipment can tell in advance that the material will meet their rigid requirements.

Ultra-sonic is only one of the many tests used to maintain the high quality of Carlson stainless plate. The final, and most important test, is when *you* get repeat orders from *your* customers.

Write, wire or phone for complete information on all Carlson services.

G.O.CARLSON *Inc.*

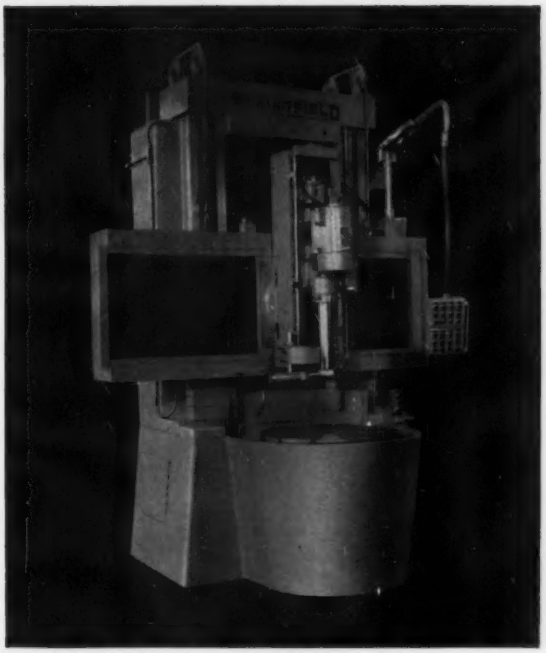
Stainless Steels Exclusively

120 Marshalton Road
THORNDALE, PENNSYLVANIA
District Sales Offices in Principal Cities

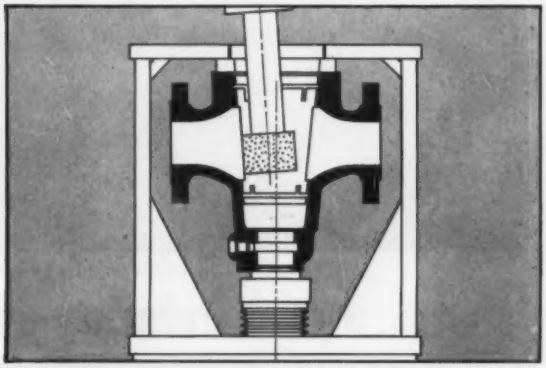
PLATES • PLATE PRODUCTS • HEADS • RINGS • CIRCLES • FLANGES • FORGINGS • BARS AND SHEETS (No. 1 Finish)

Vertical grinding tapers profitably

SPRINGFIELD



Standard vertical grinder above is typical of those used by leading manufacturers of large valves for grinding internal taper seats. Profits are made because set up time is fast; for example, it takes about five minutes to change over from grinding 18″ valves to 10″ valves. The inherent rigidity of the machine is made doubly effective by gravity. Valve, fixture, and face plate are supported on a heavy *vertical* work spindle which promotes accuracy, precise concentricity, and extremely fine micro-inch finish.



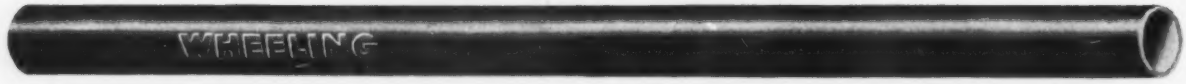
Internal valve tapers, as shown above, are fast payoff jobs on a Springfield Vertical Universal Grinder. On this valve taper, stock removal is 0.020″ with a requirement for 85% blue or better on a taper gage. Surface finish is held well within the 30 RMS specified. Machine swings to 52″, grinding holes from 2″ to 42″ dia., 24″ deep in irregular or regular shaped work pieces.

Not limited to internal or exterior tapers, a Springfield grinds efficiently on O.D. and I.D. shoulders, offsets, undercuts, irregular holes, and mating angles—usually in one chucking.

A few production and toolroom men turn to a Springfield because there's no other way to do the job. Most turn to a Springfield because it's the most profitable way to do many jobs. Write today for Bulletin No. 197-D. The Springfield Machine Tool Company, Springfield, O.

STEEL PIPE BY WHEELING

Primary carrier of gas!



It's an easy step from gas field to kitchen stove – thanks to strong, dependable gas carriers like Wheeling Pipe.

Yet the amazing strength and dependability of Wheeling Steel Pipe are but two of the many reasons why it's so widely used in gas transmission. For example, workers like Wheeling Steel Pipe because it welds easily, strongly and quickly. And buyers like it because of the low, low per-year cost!

For details on dependable, economical Wheeling Continuous Weld Steel Pipe—black and galvanized, see your Wheeling man or write Wheeling Steel Corporation, Wheeling, W. Va.

Why Wheeling Steel Pipe is First Choice!

- Lowest cost with durability
- Strength unexcelled for safety
- Formable — bends readily
- Weldable — easily, strongly
- Threads smoothly, cleanly
- Sound joints, welded or coupled
- Grades, finishes for all purposes
- Available everywhere from stock

Always insist on pipe made in the U. S. A.

WHEELING STEEL CORPORATION · IT'S WHEELING STEEL! *District Sales Offices at Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Houston, New York, Philadelphia, St. Louis, San Francisco, Wheeling*

12 Ton Plymouth Locomotive operates 24 hours daily over 10 mile track system at this modern steel mill

PLYMOUTH lowers production costs by keeping steel in process on the move!

You get the reliability that returns greater profits when you put a Plymouth Locomotive to work—and the more continuous usage you give it, the more you benefit. There are many good reasons for that.

Plymouth Locomotives are built to handle big jobs with speed and efficiency around the clock—in all kinds of weather. Instant availability, low maintenance requirements, and faster switching, spotting and hauling performance reduces costs all around. Smooth starts and ease of control make Plymouth popular with the operators, reduce fatigue, and keep efficiency high.

We make both gasoline and Diesel Locomotives from 3 to 80 tons—either mechanical or Torqomotive (hydraulic torque-converter) drive—there's a Plymouth Locomotive that will fit your requirements perfectly.

"Saving time and money with our Torqomotive," says this user.

Within a few months after the Plymouth Diesel Torqomotive shown above was delivered, this Eastern steel manufacturer knew they had an outstanding locomotive. "Too early for actual cost figures," was the report, "but haulage by Plymouth is superior to previous methods. Our operator likes it better, too."

Send us a brief outline of your operation and we'll send you a recommendation promptly. Address: Plymouth Locomotive Works, The Fate-Root-Heath Company, Dept. A-2, Plymouth, Ohio.

PLYMOUTH® LOCOMOTIVES

WITH TORQOMOTIVE DRIVE

RAIL POWER

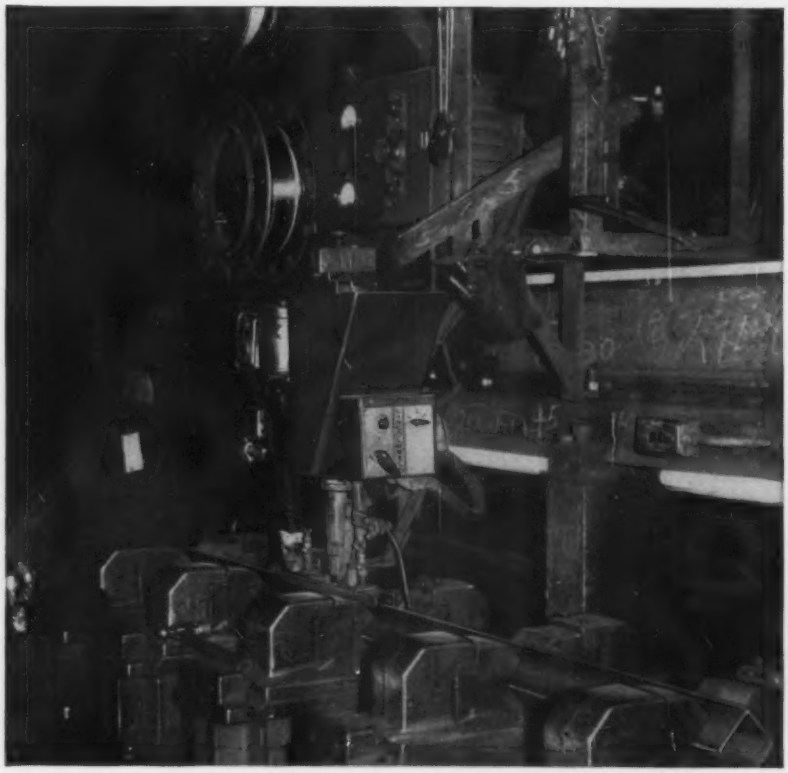
PLYMOUTH LOCOMOTIVES—
in PROGRESSIVE INDUSTRY
throughout the WORLD

ALSO BUILDERS OF
F-R-H CERAMIC MACHINERY

Lincoln

WELDYNAMICS

NEWS ABOUT ARC WELDING AT WORK CUTTING COSTS



Four foot, ¼" box beam is positioned, welded and cleaned in 2½ minutes. Lincolnweld with Twinarc welds at 90" per minute.

TWINARC SIMPLIFIES WELDING... UPS FARM MACHINE PRODUCTION

The Krause Corporation has increased production on box beams 33% with their Lincolnweld Automatic welder by adding a Twinarc attachment. This company in Hutchinson, Kansas, makes one-way plows, wheel-mounted disc harrows and chisels, self-propelled forage harvesters and other farm equipment.

The Twinarc attachment feeds two welding wires through a single submerged arc welding head, doubling the speed of welding with a single wire.

Krause fabricates the box beams from ¼" angles. The angles are put in a jig, clamped in position with hydraulic positioners. The Twinarc makes one pass on each of the two edge seams at 90 inches-per-minute.

Mr. Wilbur Thomas, Krause's Welding Foreman says, "The Twinarc not only welds faster, but higher currents make it possible to weld the angles without cleaning off light rust and oil which used to cause some imperfections when a single wire was used."

This application has proved so successful at The Krause Corporation that they are now installing their second Lincolnweld Automatic welder with a Twinarc attachment.

For help with welding procedures, or cost reduction ideas, call your Lincoln welding engineer today.

Wilbur Thomas, Welding Foreman, "Savings justified the purchase of a second machine."

Catalog Available

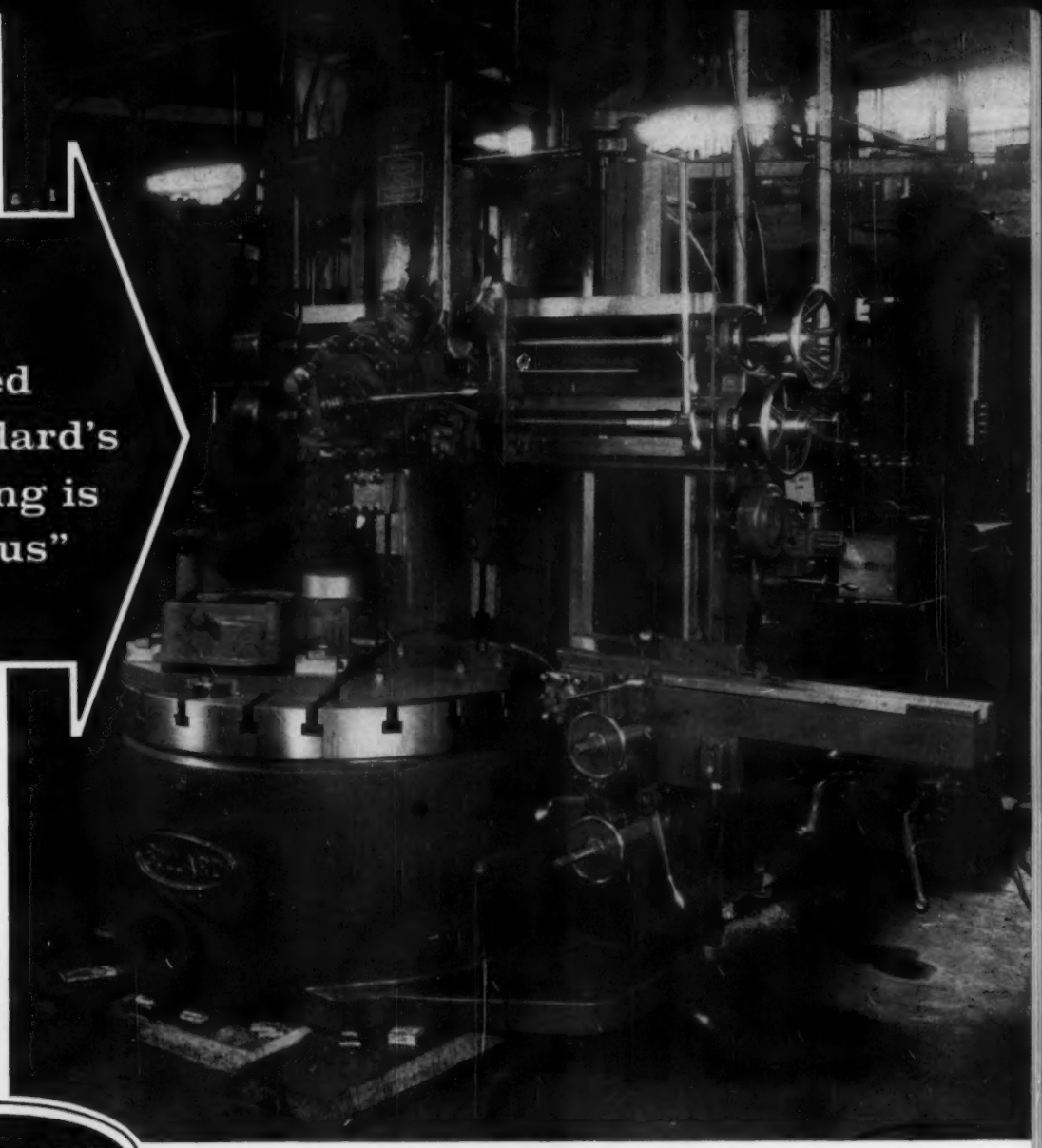
Complete information on Lincolnweld Automatic Submerged Arc welding equipment and accessories is contained in Bulletin 5200.1. A copy may be obtained by writing, on your letterhead to Lincoln.

THE LINCOLN ELECTRIC COMPANY

Dept. 1555 • Cleveland 17, Ohio

The World's Largest Manufacturer of Arc Welding Equipment

"We're convinced that Bullard's rebuilding is best for us"



54" Spiral Drive V.T.L. – similar to one rebuilt for Cann & Saul Steel Co.

BULLARD

About a year ago, the Cann & Saul Steel Company, Royersford, Pa., had The Bullard Company rebuild its 54" Spiral Drive V.T.L. Says Mr. Russell Freed, Vice President, "After Bullard disassembled the machine, I visited their plant to check on certain phases of the rebuilding and believe me when they say "Bullard rebuilds from the ground up" they mean exactly that — it was completely disassembled right down to the last bolt. We were so satisfied with their work on this machine that we since have had them rebuild our 42" Spiral Drive V.T.L. — in other words — one good job deserves another."

This same reliable rebuilding, guaranteed for one full year, both parts and labor, can be applied to your Bullard equipment. For information, just mail the coupon or write

THE BULLARD COMPANY
BRIDGEPORT 9, CONNECTICUT

THE BULLARD COMPANY 286 Canfield Avenue, Bridgeport 9, Conn.
Gentlemen: Please have your salesman call to discuss rebuilding our

_____

YOUR NAME_____ TITLE_____

COMPANY_____

CITY_____ ZONE_____ STATE_____

IN PRODUCT AFTER PRODUCT AFTER PRODUCT . . . WEIRTON HOT- AND COLD-ROLLED SHEET

Is your product as complicated as automobile sheet metalwork? Or as tough to form as a portable TV cabinet? Or as dependent on good looks as laundry equipment?

Then Weirton hot- or cold-rolled sheet is for you, too. It brings you the triple advantages of uniform gauge, uniform strength, uniform ductility. It holds up under your toughest fabrication steps, helps you turn out a better product at lower cost. And it'll prove itself in your product, just as it has in thousands of others.

Weirton produces top quality sheets to serve the needs of modern fabrication. For prompt and complete information, just phone or write Weirton Steel Company, Dept. A-4, Weirton, West Virginia.

WEIRTON STEEL COMPANY

WEIRTON STEEL COMPANY
WEIRTON, WEST VIRGINIA
a division of
NATIONAL STEEL CORPORATION

Load Handling is Easy— Safe with COFFING

Quik Lift ELECTRIC HOISTS

It's easy for the operator to raise or lower loads while pulling a trolley mounted Coffing Quik-Lift Electric Hoist. The design of the pistol-grip control station and the combination strain and power cable makes this possible. The light but strong aluminum housing provides ease of portability. Changing voltages, limit switch, type of suspension or chain is quick because the housing is in sections.

For Safety the control station is made of non-conducting plastic in which the voltage is reduced to 115 volts and the push-buttons are mechanically interlocked. The V-type brake which provides maximum braking surface and positive control of loads is another safety feature.

For Efficiency in load handling specify Coffing Quik-Lift. Twenty models—capacities range from ¼ to 2 tons. Ask your distributor for details or write for Bulletin ADH-65.

DUFF-NORTON

- Pistol-Grip Push-Button Control
- Lightweight Aluminum Housing
- V-Type Brake for Maximum Braking Surface
- Easily Adjusted Limit Switch
- Complete Line of Accessories

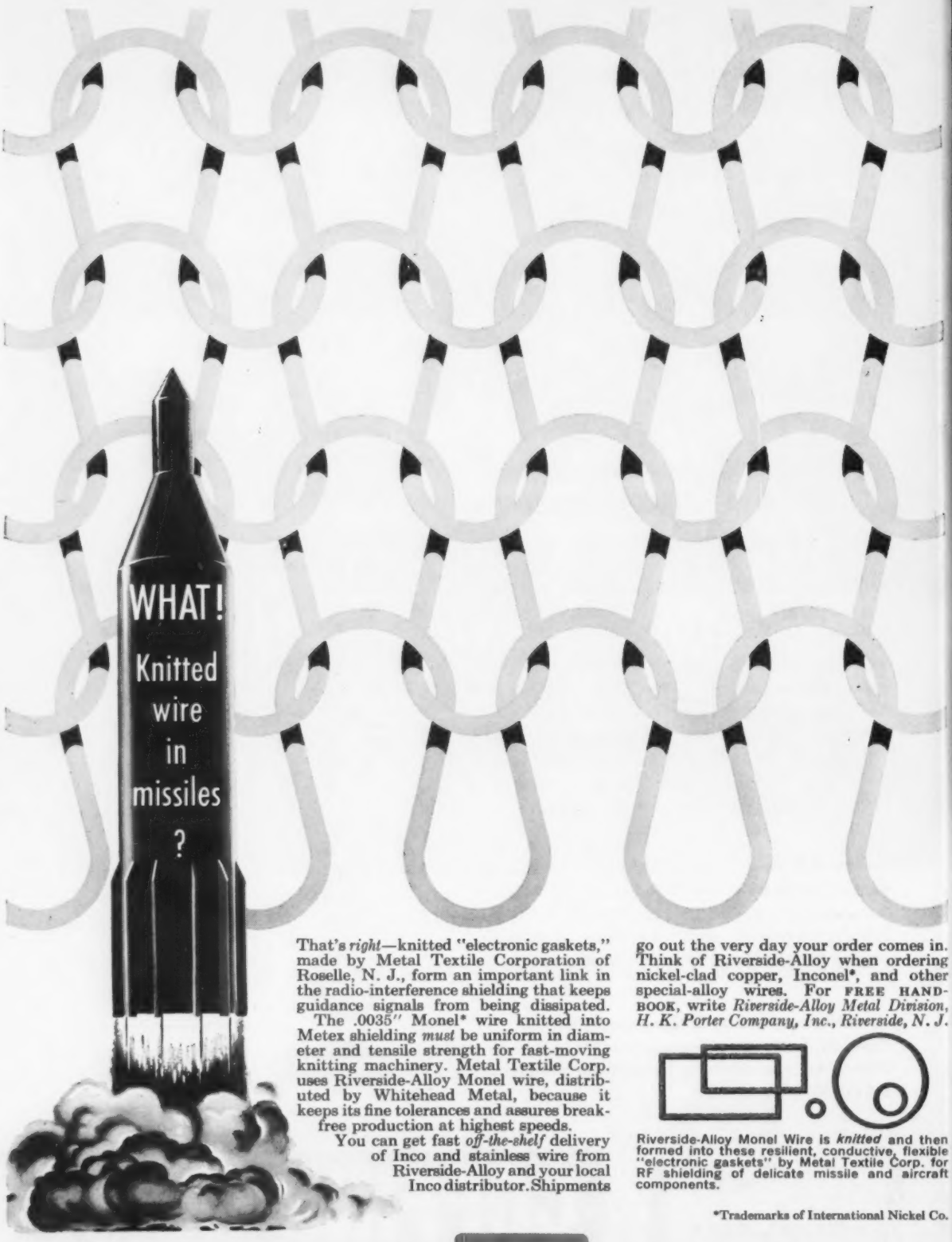
RATCHET LEVER HOISTS

SAFETY HOOKS

CHAIN HOISTS

COFFING HOIST

DIVISION OF
DUFF-NORTON COMPANY
814 Wolter Street · Danville, Illinois



That's *right*—knitted "electronic gaskets," made by Metal Textile Corporation of Roselle, N. J., form an important link in the radio-interference shielding that keeps guidance signals from being dissipated.

The .0035" Monel* wire knitted into Metex shielding *must* be uniform in diameter and tensile strength for fast-moving knitting machinery. Metal Textile Corp. uses Riverside-Alloy Monel wire, distributed by Whitehead Metal, because it keeps its fine tolerances and assures break-free production at highest speeds.

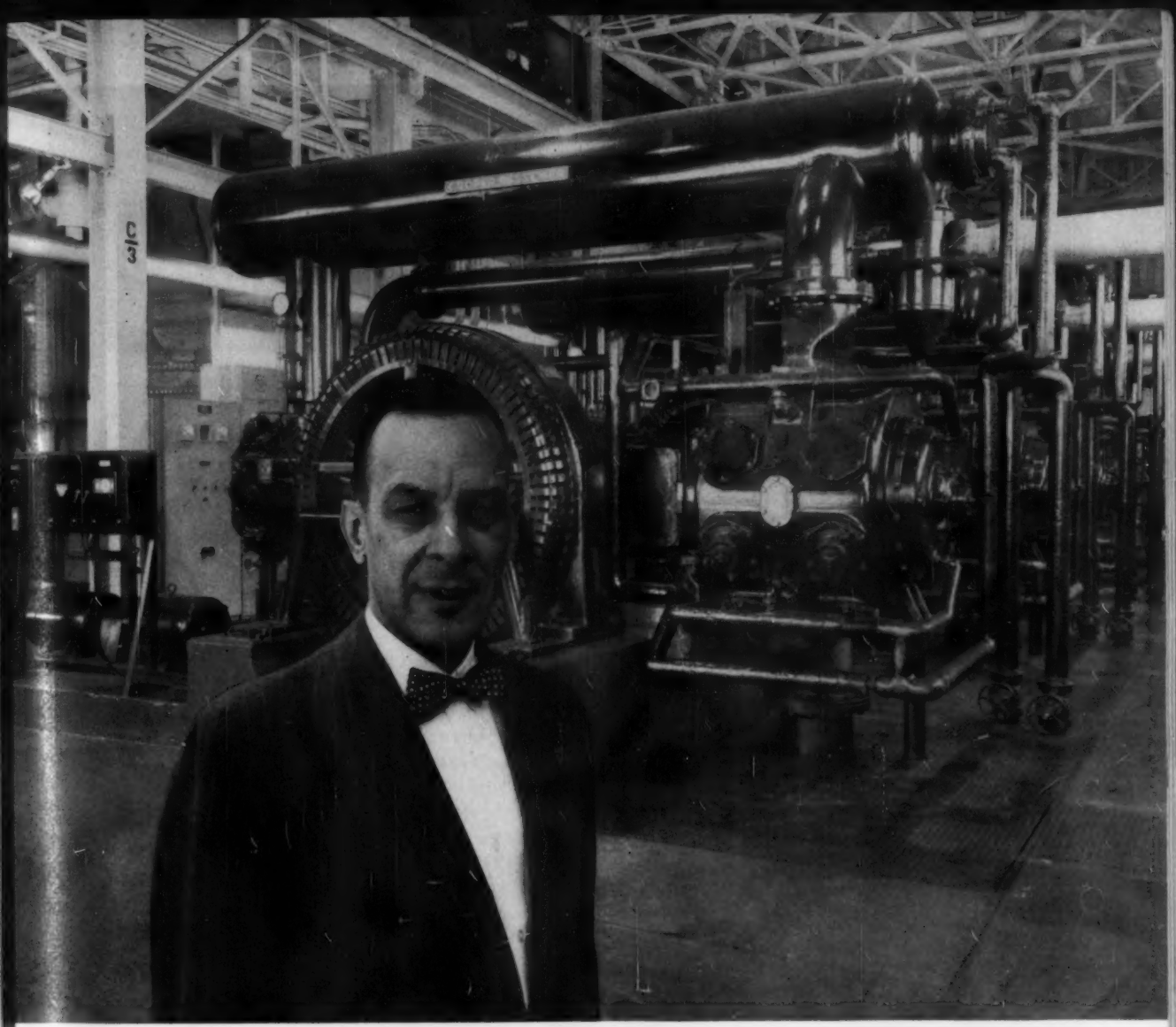
You can get fast *off-the-shelf* delivery of Inco and stainless wire from Riverside-Alloy and your local Inco distributor. Shipments go out the very day your order comes in. Think of Riverside-Alloy when ordering nickel-clad copper, Inconel*, and other special-alloy wires. For FREE HANDBOOK, write *Riverside-Alloy Metal Division, H. K. Porter Company, Inc., Riverside, N. J.*

Riverside-Alloy Monel Wire is *knitted* and then formed into these resilient, conductive, flexible "electronic gaskets" by Metal Textile Corp. for RF shielding of delicate missile and aircraft components.

*Trademarks of International Nickel Co.

RIVERSIDE-ALLOY METAL DIVISION PORTER **H.K. PORTER COMPANY, INC.**

PORTER SERVES INDUSTRY: with Rubber and Friction Products—THERMOID DIVISION; Electrical Equipment—DELTA-STAR ELECTRIC DIVISION, NATIONAL ELECTRIC DIVISION; Copper and Alloys—RIVERSIDE-ALLOY METAL DIVISION; Refractories—REFRACTORIES DIVISION; Electric Furnace Steel—CONNORS STEEL DIVISION, VULCAN-KIDD STEEL DIVISION; Fabricated Products—DISSTON DIVISION, FORGE AND FITTINGS DIVISION, LESCHEN WIRE ROPE DIVISION, MOULDINGS DIVISION; and in Canada, Refractories, "Disston" Tools, "Federal" Wires and Cables, "Nepcoduct" Systems—H. K. PORTER COMPANY (CANADA) LTD.



Grover H. Detmer, *Project Engineer,*
The Cooper-Bessemer Corporation, explains...

How Cooper-Bessemer compressors supply air for Ford assembly

Compressed air plays an important part in the production operations of the new Ford assembly plant in Lorain, Ohio. Behind this supply, you'll find four 400 hp Cooper-Bessemer compressors with En-Tronic controls. Housed in the power plant building, these units discharge at 104 lbs. pressure. Mains of 8" size carry the air about 1000 feet to the far ends of the huge plant. Pressure there is 98 lbs. The 5-step capacity controls automatically load the compressors to meet plant demands for air.

The Cooper-Bessemer equipment has been in use constantly since the plant was completed a year ago and have given excellent service.

Cooper-Bessemer M-line compressors for industrial air supply are available in sizes from 200 to 10,000 hp. Write for free copy of Bulletin M-81, "Air for Industry."

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ENGINE OR MOTOR DRIVEN

FLEXIBILITY + CUT-ABILITY = LONGER LIFE AND LOWER COSTS...

with SIMONDS

HARD EDGE

Metal Cutting Band Saw

Here's a tough, edge-holding band saw blade that gives a real bonus in smooth, fast cutting and long life. Made of rugged, wear-resistant alloy steel, Simonds "Bonus" Band Saws have sharp, perfectly formed teeth that are set with absolute evenness on both sides of the blade. Hardened along the tooth edge only by scientifically controlled heat treatment, they combine maximum cut-ability with flexibility and resistance to breakage . . . have an enviable reputation for dependable, trouble-free service. All standard widths, tooth styles and spacings are available from stock in coils or welded-to-length for all makes and types of band saw machines.

A "RIGHT" BLADE For Every Need

•

REGULAR TOOTH
SABRE TOOTH
SKIP TOOTH

•

REGULAR or WAVY SET

•

HARD EDGE
HIGH SPEED STEEL
SPRING TEMPER

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For Fast Service from Complete Stocks
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. . . . . What's the limit: Heat? Shock? Speed? Or complicated radial and thrust loads?

Name the combination of requirements . . . and chances are you'll find them met by a Rollway Maximum precision radial cylindrical roller bearing. If not, then Rollway engineers will modify any factor to meet your application.

Rollers are crowned to prevent end-loading and the resultant spalling of races. Directional trueness is maintained by retainers of standard bronze or "Rollube" ferrous alloy of one piece or two piece construction.

You may wish to refer to the Rollway Catalog and Engineering Data Book when writing specifications for a high precision bearing. It contains the first listing, by any manufacturer, of the thrust capacities of cylindrical radial roller bearings. Send for it today.

ENGINEERING OFFICES:

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Toronto Pittsburgh Cleveland
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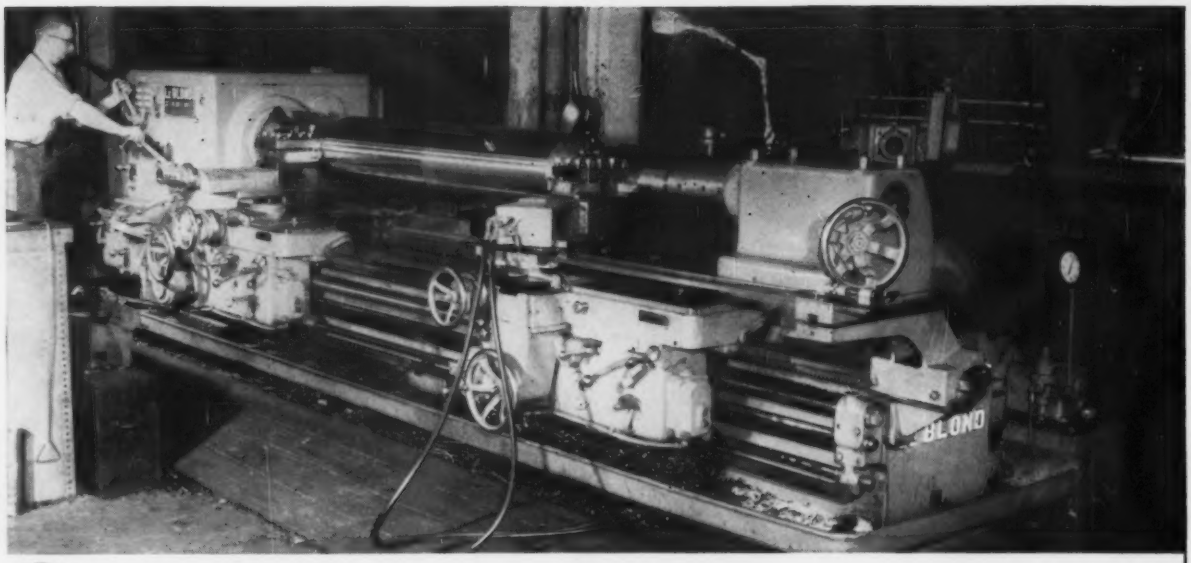
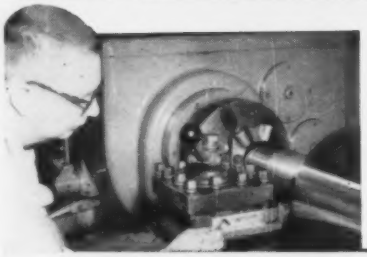
ROLLWAY®
BEARINGS
COMPLETE LINE OF RADIAL AND THRUST CYLINDRICAL ROLLER BEARINGS





"We refuse to sacrifice half our machine capacity to save pennies on tool costs"

. . . so says a Tool Engineer of a progressive company that increased speeds and feeds on a new 50-hp heavy-duty LeBlond tracer lathe to reduce tool life from 75 to 25 minutes. He challenged the economics of the long-tool life theory. Now, two edges of a Kennametal* "throw-away" insert are used to machine a cylinder 72" long by 15½" diameter. But, he reports: "Two 21¢ cutting edges are an extremely small price to get high efficiency from a fine big machine."

Equipped with a Kendex* (Pattented) KSBR-86 style tool holder with "throw-away" inserts, the lathe is turning 1040 steel with a 325 Brinell hardness. Now operating the lathe at 111 rpm, 430 sfpm, .027 feed, the company is satisfied that the increased tool cost, from 18¢ to 62¢ per hour, is insignificant because they have *tripled the output of a machine charged at $10 per hour.*

Ask your Kennametal Carbide Engineer how other companies are relieving the squeeze on profits by sacrificing pennies in tool life for top machine output. Ask him how your shop may get more work out of present machines at less cost. Or write KENNAMETAL INC., Latrobe, Pa., for the full story . . . ask for the booklet, "There's Profit in Retiring a Tradition."

*Trademark

CHECK THE SAVINGS POSSIBILITIES IN YOUR OPERATIONS

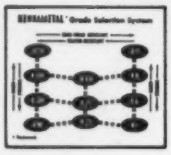
Jot down costs of throw-away inserts and output of one of your present machines . . . then in the next column the same data when insert life is reduced to 20, 30 or 40 minutes. The cost of inserts will multiply . . . but look what happens to over-all cost-per-piece and profit!

	Setup to get longest possible tool life	Full-capacity setup (for highest machine efficiency and output)
Machine cost per hour		
Tool cost per hour		
Total per 8-hour shift		
Pieces run per shift		
COST PER PIECE		

TO MULTIPLY YOUR MACHINE OUTPUT . . . YOU NEED THREE THINGS:

1. The "Three-Man Tooling Team" that utilizes the specialized knowledge of your Tool Engineer, your Machine Operator, and the Kennametal Carbide Engineer . . . *to determine the right tooling.*

2. The Kennametal complete range of Grades that provides the precise properties and uniformity that *permits accurate prediction of tool life.*



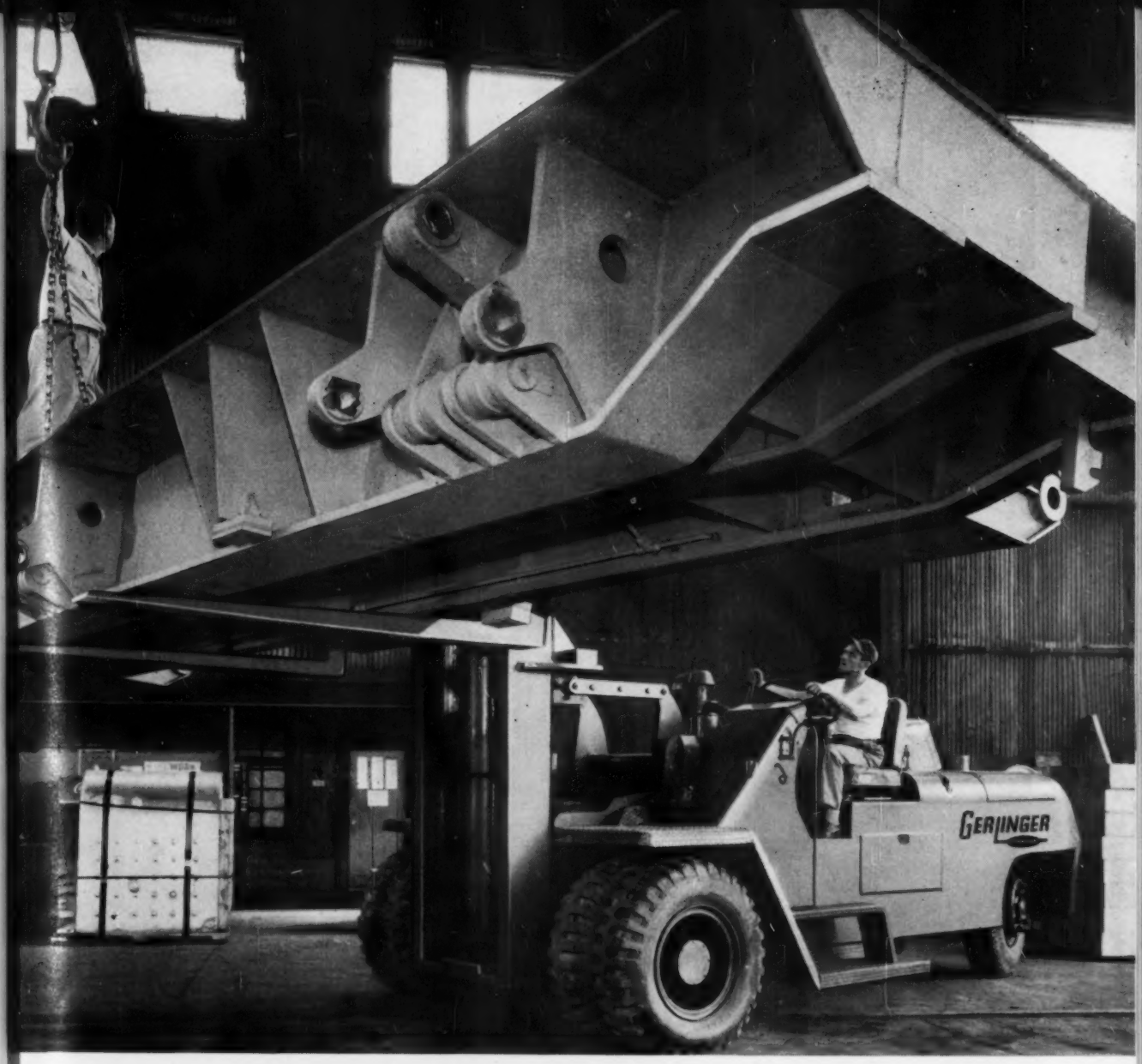
3. Kendex* (patented) instant insert change without need to reposition the tool. This is the key to this new practice . . . *frequent tool change without excessive downtime.*

8789

Don't waste $$$ in machine output to save ¢¢¢ in longer tool life

INDUSTRY AND **KENNAMETAL**

. . . Partners in Progress



Savings match the load!

You're seeing a Gerlinger Fork Lift Truck showing some of the remarkable stamina and stability that causes users to say, *"Our first choice is Gerlinger for the BIG JOBS!"*

What you can't see till you own one are the tremendous savings you gain. As you move more tons per hour . . . at much less cost . . . your profits increase in proportion. *Gerlinger* offers standard gas-powered, pneumatic-tired, *Job-Proved* fork lift trucks that handle as much as 40,000 pounds per trip. (Diesel engines optional.)

Want to see how savings match the load? Ask for Certified Job Studies covering your specific handling operations—and new Gerlinger Specifications Folder *GSS*. Write Towmotor Corporation, Cleveland 10, Ohio or Gerlinger Carrier Company, Dallas, Oregon.*

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CLEVELAND AUDITORIUM
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TOWMOTOR THE ONE-MAN-GANG — **-GERLINGER**

LEADERS FOR 40 YEARS IN BUILDING FORK LIFT TRUCKS, CARRIERS AND TRACTORS

*Gerlinger Carrier Co. is a subsidiary of Towmotor Corporation

* A PERFORMANCE BRIEF

Trackmobile® sends taconite traveling—fast!

Brawniest of three Trackmobile models, this 5TM is one of six operating at a leading taconite mine. This powerful team handles and positions 100 ore-laden cars a day . . . shuttling back and forth over road and rail to keep production moving on schedule. Economical and easy to operate, Trackmobile is ideal for every switching, spotting and hauling assignment.

For the maximum in materials handling efficiency, look to Whiting Trackmobiles, Cranes and Trambeam overhead handling systems. "Performance Briefs," the colorful new booklet of on-the-job reports shows how Whiting equipment helped others solve the problems that could be bothering you. Send for "Performance Briefs" today . . . *Whiting Corporation, 15601 Lathrop Ave., Harvey, Ill.*

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MANUFACTURERS OF CRANES; TRAMBEAM HANDLING SYSTEMS; TRACKMOBILES; FOUNDRY, RAILROAD, AND SWENSON CHEMICAL EQUIPMENT

beauty is stainless steel

Look for the beauty of Stainless Steel on your new automobile. Its bright finish will make your car look better, stay in style longer and have a higher trade-in value.

No other metal offers the freedom of design and fabrication, economy of care and the durable beauty that serves and sells like Stainless Steel.

McLOUTH STEEL CORPORATION, Detroit 17, Michigan

specify

McLOUTH STAINLESS STEEL

HIGH QUALITY SHEET AND STRIP

for automobiles

Sonic testing, employing high-frequency sound waves, is one of several methods for detecting internal flaws in steel. Above, an open die-forged shaft is being sonic tested prior to shipment for use in a gyratory crusher.

Quality control—a vital activity at Standard Steel Works

Every conceivable shop and laboratory test required for modern quality control can be performed by Standard's staff of metallurgical technicians. Testing of incoming raw materials for undesirable elements, testing of finished product for minute quantities of gas, ultrasonic, X-ray and microscopic examination, and tests for dimensional integrity are but a few of the routine checks which assure that the finished, delivered product will meet the most rigid specifications. Write Department I-E for full details.

Standard Steel Works Division
· BALDWIN · LIMA · HAMILTON

BURNHAM, PENNSYLVANIA

Rings • Shafts • Car wheels • Gear blanks • Flanges • Special shapes

there's enough "EXTRA" here to give you an EDGE

SCOVILL

QUALITY CAN PUT YOU AHEAD OF COMPETITION

Many a Scovill customer has said to us, in effect, "We're doing so well with Scovill Mill Products that it's giving us a nice little 'edge' on the competition. Don't tell our competitors". But that kind of "secret" cannot be kept for long, and it's a fact that more and more fabricators are following up the smart lead and switching to a higher standard of quality in Scovill Brass • Copper • Aluminum. They're finding that Scovill's deliberately planned program of constant improvement in mill production equipment and methods pays off in results on the fabricator's own production line.

You can buy Brass • Copper • Aluminum Mill products from many sources . . . BUT Scovill fabricator-oriented services are available only from . . . the source of Mill Products bearing this Trademark.

BRASS • COPPER • ALUMINUM

Scovill Manufacturing Company, Mill Products Division, 99 Mill St., Waterbury 20, Conn. Phone Plaza 4-1171.

11-OC-59

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BRASS STRIP and ALUMINUM SHEET

Here is the last word in rolling mill equipment and coordinated precision controls for production of brass strip and aluminum sheet to far closer dimensional tolerances and with far superior micro-inch finish than that available under previous commercial standards.

Fabricators who have been awaiting materials of such "super" accuracy, uniformity and micro-inch surface finish can expect these important benefits:—

- A dependably close ratio between anticipated footage of metal, weight of metal and actual parts produced, because of precision controlled gauge tolerances.
- Fewer press or other machine adjustments and longer tool wear with the use of metal that is more uniform in all respects.
- Superior finish and appearance of parts as a result of much closer micro-inch finish control.

Fabricators requiring this extra measure of quality, this extra aid to maximum economy in production of brass or aluminum parts, are invited to discuss this new Scovill Service.

MADE IN U.S.A. TO THE STANDARDS OF AMERICAN INDUSTRY

made better to bring out the BEST in your products

it PAYS to specify...

BRASS

COPPER

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MILL PRODUCTS

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SPECIAL MACHINERY • ROLLING MILL MACHINERY

"YOUNGSTOWN" Quality Begins Here...

CREATIVE DESIGN IS THE BASIS OF "YF&M" SUCCESS IN BUILDING BETTER MACHINERY AND EQUIPMENT

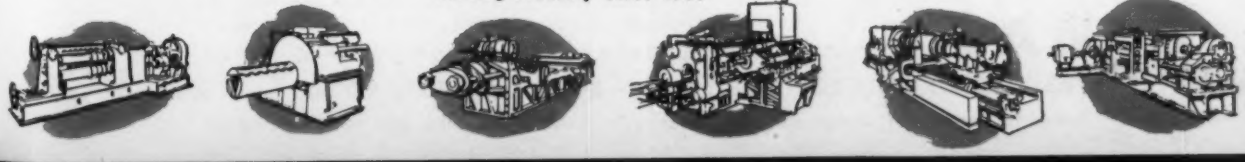
The right start calls for modern facilities such as provided in our new office and engineering building. But more important than facilities are the abilities of the progressive engineers here to serve you.

Our design staff is ready to team up with your own engineers for research or to make an independent study of your problems. This assures a long productive future for whatever we build for you now . . .

Completely integrated lines: Pickling lines, Scrubber lines, Slitting lines, Shearing lines, Extrusion presses and all auxiliary equipment, Furnace charging equipment, Runout tables . . . Paralloy and ductile iron rolls . . . Custom built equipment . . . all benefiting from our ¾ century of experience. Tell us your needs.

The Youngstown Foundry & Machine Co. Youngstown, Ohio

Serving Industry Since 1885



Lima Type 24 Crane with wagon mounting at work in yard of Allis-Chalmers Pittsburgh Works. Machine handles crating lumber and steel rolled shapes, sheets, plates and bars. It is powered by an Allis-Chalmers engine.

LIMA Type 24 Wagon Crane combines fast, sure lifts with great mobility

The Lima Type 24 with wagon mounting is a versatile, air-controlled, streamlined crane, engineered for ease of handling, snappy performance, and low cost maintenance. Traveling under its own power at automotive speeds, it makes light work of heavy lifting jobs all over the lot. When equipped with a 30-ft. boom, the Type 24 has a lifting capacity of 18 tons at a 10-ft. radius.

Included in the Type 24 design are many quality features that are normally found on machines of larger capacity:

- Air-controlled main and auxiliary operations
- 55 anti-friction bearings
- Power load lowering (optional)
- Large diameter hoist, crowd and swing brakes and clutches
- Independent boom hoist, with engine-controlled boom lowering

The Lima Type 24 is also available with a 6 x 4 truck mounting or with crawlers. For full details, contact your nearby Lima distributor or write to Construction Equipment Division, Baldwin-Lima-Hamilton Corporation, Lima, Ohio.

DISTRIBUTORS IN PRINCIPAL CITIES OF THE WORLD

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Shovels • Cranes • Draglines • Pullshovels • Roadpackers • Crushing, Screening and Washing Equipment

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At Lukens Steel, massive ingots are heated for rolling in Salem-Brosius pit-type ingot heating furnaces.

When Lukens Steel expanded it specified Salem Soaking Pits

At Lukens Steel Company of Coatesville, Pa., famed maker of carbon and alloy steel plate and plate products, Salem-Brosius recently completed 12 of the largest soaking-pit furnaces ever designed and constructed. The pits are of the 2-burner, single-end top-fired type, fitted with needle-type metallic recuperators and capable of placing 200 tons of steel under cover per pit.

When asked for an opinion of the soaking-pits, one Lukens operating official said, "If we didn't think that Salem-Brosius pits were best for our purposes, we wouldn't have ordered them. After all, our expansion program calls for the most up-to-date and efficient equipment we can obtain."

Reports like this are not unusual . . . not only concerning soaking-pits, but all other Salem-Brosius heating and heat-treating furnaces. Salem-Brosius engineers are well known for their ability to design furnaces for maximum high-quality output at minimum operating cost. If your plans call for replacing old furnaces or adding new facilities, why not ask us to bid? There will be no obligation.

New Salem-Brosius auto-floor-type charging machine making alloy additions to the electric furnace at Lukens. Salem-Brosius' heavy mechanical equipment matches the quality of its furnaces.

SALEM-BROSIUS, INC.

PITTSBURGH, PENNSYLVANIA

Salem Engineering Limited, Toronto, Ontario • Salem Engineering Co., Ltd., London & Milford, England • Salem-Brosius, S.A., Luxembourg • Salem-Brosius, S.A., Paris, France • Alloy Manufacturing Corp., Pittsburgh, Pennsylvania • R. H. Freitag Manufacturing Div., Akron, Ohio • General Ionics Corp., Pittsburgh, Pennsylvania.

Slammin' Sam Snead fails to flake Inland TI-CO®

As one of golf's great players, Slammin' Sam earned his name and fame with a driving power that has seldom been equalled. His swing is deceptively easy—yet it drives the ball with astounding force and speed. At Boca Raton, Sam drove ball after ball into an Inland TI-CO galvanized sheet. Each impact was terrific. One would expect such punishment to be devastating, yet, though the TI-CO sheet was battered and dented—*there was no flaking of the zinc coating whatsoever!*

All year 'round in product fabrication and assembly; in a limitless variety of commercial and residential applications; Inland TI-CO regularly takes equally tough treatment—deep-drawing, spin-drawing, Pittsburgh lock-seaming, crimping, punching, hammering—*without cracking, peeling or flaking!*

Sam couldn't believe it either 'til he examined the TI-CO sheet for himself. *Not a trace of flaking!*

Consult your Inland Representative regarding *your* galvanized sheet or coil requirements. And send for your free TI-CO booklet containing technical data and complete information. TI-CO is produced with dry, oiled or chemically treated surfaces in sheet and coil form in a wide variety of gages and widths.

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INDUSTRY IS SPENDING MORE for capital equipment. It could be the start of another boom in capital spending. But it may be some months before it gathers enough steam to be called that. And a long steel strike could nip it in the bud.

SECOND HALF BUSINESS PROSPECTS are good. A continuation of the upward business trend is looked for by top industrialists who attended the National Industrial Conference Board's 43rd meeting.

FRENCH ALUMINUM PRODUCERS are turning down orders from American buyers. They have already oversold the U. S. market, and will be unable to fill some orders.

ALUMINUM OUTPUT IN '59 will set a new record, according to R. S. Reynolds, Jr., president of Reynolds Metals Co. He says primary output should hit 1.9 million tons. This would be 13 pct better than the 1956 record of 1.7 million tons.

SHIPMENTS BY TRUCK reflect the improved state of the economy. Intercity truck tonnage in the week ended May 16 was 18.2 pct ahead of the corresponding week of 1958, says American Trucking Assn.

MATERIAL HANDLING EQUIPMENT orders are up for the third straight month. Dollar volume in March was 22 points better than February. At an Index of 146.36, bookings were the best since May, 1957.

AUTOMAKERS ARE OWNING UP to small car plans. General Motors now says it will offer its new "Corvair" this fall at the same time it brings out its other 1960 models. Ford will have its "Falcon" and Chrysler its "Valiant."

STEEL HOLDS THE KEY TO COPPER'S business in the second half, say copper men. That's because most steel users also use copper. So if there's a long steel strike, the copper market is going to soften.

GOVERNMENT BACKING OF LOANS to railroads is encouraging orders for new equipment and other capital spending. Two roads recently received a Government guarantee of loans of about $4 million. These are the first since Congress okayed such backing in '58.

STEELMAKERS WILL SPEND a half billion dollars or more to replace, modernize, and add hot strip mills. Three new hot mills were started last year. Four major projects have been announced since February. At least two more big installations are coming up.

Apron hoist unit on ore unloader, consisting of single welded steel drum driven by electric motor flexibly-coupled to Cleveland Worm Gear Speed Reducer.

147 CLEVELANDS on 7 new unloaders help speed ore removal at Chicago docks

SEVEN new unloaders to speed up ore handling have been erected at United States Steel's South Works in Chicago. Ten-thousand to sixteen-thousand ton ore boats now enjoy turnaround rates averaging only seven to eight and one-half hours.

These new unloaders—three on the south dock and four on the north dock—are equipped with Cleveland Worm Gear Drives—21 speed reducers per unit, 147 in all.

Wherever equipment has to perform dependably in rugged service, day in, day out, with minimum attention, builders and users alike choose Clevelands. For 45 years, Cleveland has concentrated its engineering and manufacturing facilities on making finest quality worm gearing to meet customers' most exacting requirements.

Write for new Bulletin 145 which shows standard and special design drives offered by Cleveland. The Cleveland Worm and Gear Co., 3282 E. 80th St., Cleveland 4, Ohio.

Affiliate: The Farval Corporation, Centralized Systems of Lubrication. In Canada: Peacock Brothers, Limited

Industry Spending More For Capital Equipment

Steel leads the parade of industries with bigger capital spending plans.

It could be a boom; or a steel strike might nip it in the bud.

The aim of most is replacement and more efficiency.

▪ The trend is becoming more apparent: Industry is spending more for capital equipment.

It could be the start of another boom in capital spending. But it may be some months before it gathers enough steam to be called that. And a long steel strike could nip it in the bud.

For Replacement — The current upturn in spending appears to be more for replacing outmoded equipment to increase efficiency, rather than for expansion. Industry apparently is not convinced that this is the time for another round of expansion spending.

In the forefront of the upturn in capital outlays is the steel industry. At the start of the year, it was estimated steel had earmarked about $1 billion for this purpose in '59. That was hardly anything to get excited about. The industry spent more than that in five of the eight preceding years.

But something has happened meanwhile. And industries that rely heavily on steel are starting to feel the good effects. These include industrial furnaces (see page 68), mill equipment, machine tools, presses and shears.

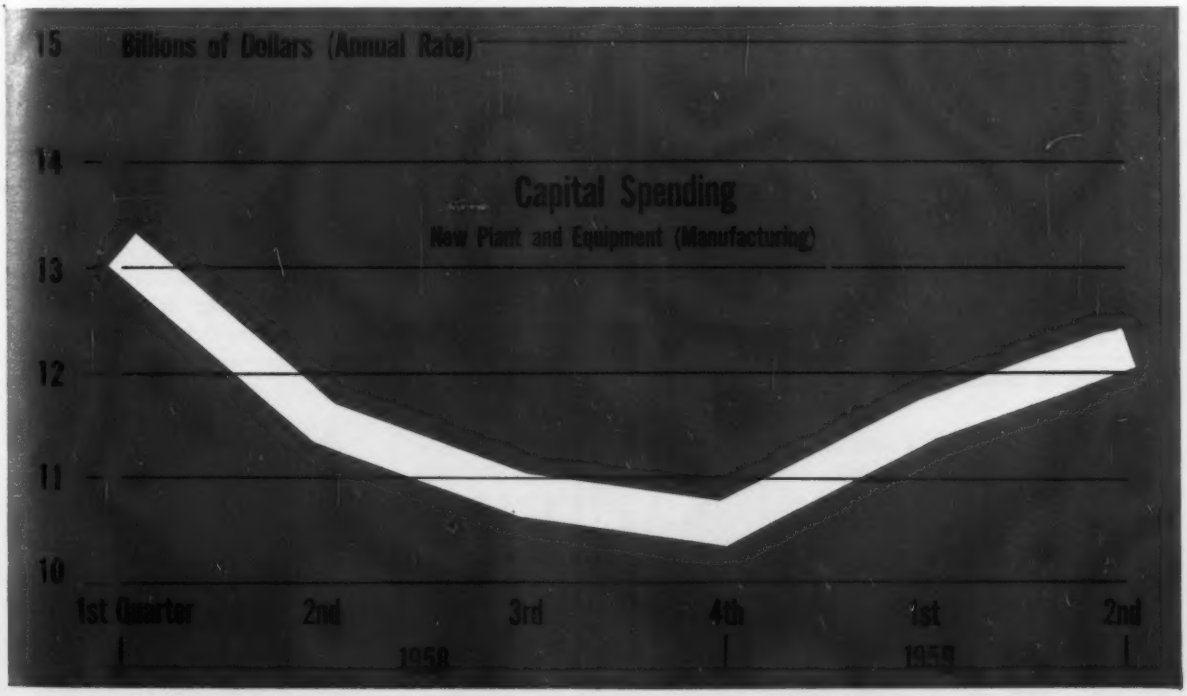
Revise Plans Upward—It's hard to tell what the steel industry will spend this year. But it's almost certain to be more than had been expected, barring a strike. The $1 billion estimate was made before these projects were announced:

National Steel Corp.'s $300 million program for a new cold rolling mill near Chicago, and a new hot mill at Great Lakes Steel Corp.

Jones & Laughlin's $234 million program covering a blast furnace, oxygen steelmaking vessels and other facilities for Cleveland and Pittsburgh.

Republic Steel's $375 million

New Plant and Equipment Spending on the Rise



program, including a strip mill for Warren, O.

Crucible's $25 million financing program to cover a hot strip mill at Midland, Pa.

U. S. Steel's Fairless Works program, including a new sintering line, an annealing line, and a tinning line.

Armco will spend $775,000 for expansion of stainless capacity at Baltimore.

Phoenix Steel Corp. is going ahead with plans for basic oxygen furnaces.

Bethlehem is building a 45 x 90-in. slabbing mill at its Lackawanna plant. It will cost about $15 million, by unofficial estimate.

All this money will not be spent this year, with or without a strike. But it's on the schedule.

Here's what some steel mill suppliers are saying:

W. W. Powell, vice president, Mesta Machine Co. — "There has been a definite pickup in activity. Within a short time, mill machinery makers will have all the business they can handle."

G. G. Beard, president, United Engineering & Foundry Co.—"Our backlog is bigger than it was at the beginning of the year and inquiries remain very active."

W. H. Morgan, Jr., president, Morgan Engineering Co.—"Our inquiries are up and our orders are better." The upturn began in March but as yet volume is nowhere near the peaks of 1956 and 1957. New openhearth techniques are resulting in increasing interest in cranes of 500-ton capacity or better.

Others in the Act—But it's not all steel. Industry generally is loosening its pursestrings. Capital spending for new plant and equipment by manufacturing companies is running at the annual rate of $12.25 billion. This compares with the recession low of $10.58 billion in the fourth quarter of last year.

Machine tool orders hit a plateau of $50.5 million in March and April, according to the National Machine Tool Builders' Assn. This includes foreign and domestic orders for metal cutting and forming machines. The order rate has been moving up since last September (see chart).

On Machine Tools—Concerning the machine tool present and future, The Value Line Investment Survey has this to say:

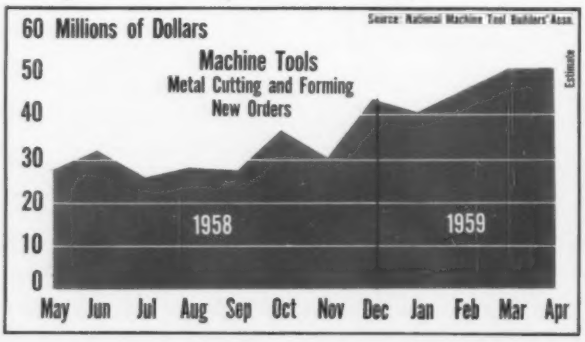
"New orders for machine tools are in a strong uptrend for the first time since 1955. But the level of incoming business is still low by past standards. The machine tool industry's brightest prospects . . . lie a year or more in the future. . . Prospects for 1960 and beyond are more favorable."

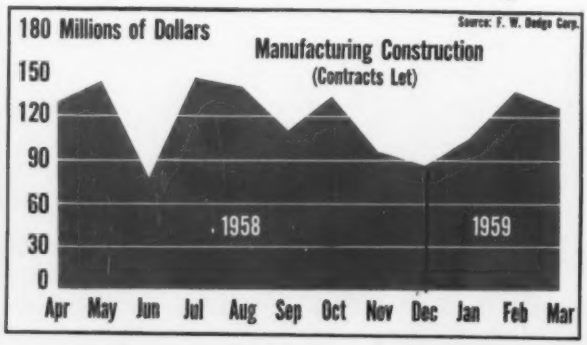
Value Line expects total plant and equipment outlays this year will be about 8 pct larger than in 1958. "For the most part, this increase will be concentrated in outlays for machinery."

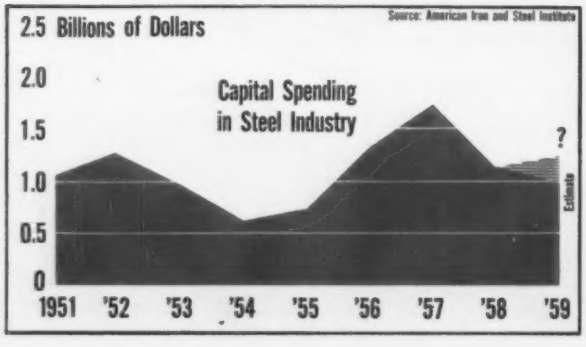
Pressing Business — Demand for presses is running strong. Says M. D. Verson, Verson Allsteel Press Co.: "Operations are up, and assuming a balanced economy for the rest of this year, we see appreciable gains ahead."

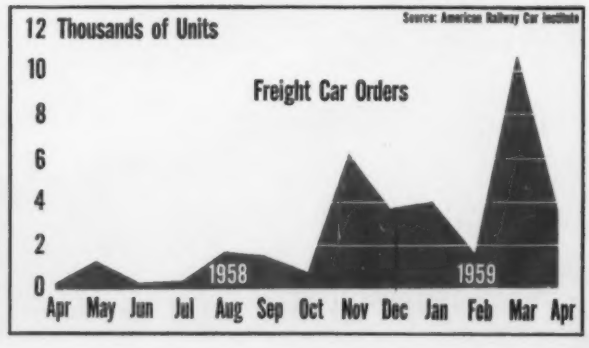
E. P. Cunningham, Clearing Machine Div., comments: "The entire press picture is picking up. Gains of 50 pct for the industry over 1958 levels do not seem beyond reason."

Capital Spending Pursestrings Are Loosening









First quarter orders for hydraulic, pneumatic, and mechanical presses ran about 25 pct ahead of a year ago. Backlogs are at 60 days or better, and are increasing. A number of inquiries have been received for heavy automotive equipment for 1961 models, but this market isn't expected to show real strength until after July. A cheering note: Export sales have been gaining at a faster rate than have domestic sales.

Foundry Spree—As reported earlier by The IRON AGE (May 14, 1959, page 110), better business in the foundry industry has touched off what may prove to be one of the biggest new equipment buying sprees in years.

The Foundry Equipment Manufacturers' Assn.'s index of new orders jumped to 237 in February from 127 in January. Last year's average was only 89. Demand is pretty much across the board. It covers blast cleaning and tumbling equipment, dust and fume collectors, molding machines and material handling equipment. The only laggard has been furnaces.

The current rate of capital spending is pretty small compared with the nation's needs in the way of equipment and capacity expansion.

According to James H. Jewell, vice president, marketing, Westinghouse Electric Corp.: The nation will spend upward of $500 billion on new construction during the next 10 years.

Mr. Jewell pointed to the problems of rising costs, foreign competition, the cold war, and the probability of a manpower shortage in the future.

His solution: Improve efficiency, raise productivity, develop better management know-how, train workers better, invest in newer tools and technology, and reduce distribution costs.

Reprints of this article are available as long as the supply lasts. You may obtain a copy from Reader Service Dept., The IRON AGE, Chestnut & 56th Sts., Philadelphia 39, Pa.

Small Car Plans

▪ Big Three automakers finally made it official last week—They'll build and market light cars starting with 1960 models this fall. They held back details, but officially revealed the names.

General Motors, last of the three to even make qualified admission of the existence of small car plans, said the most when it took the lid off at its 51st annual stockholders meeting in Wilmington.

No Hedging—Chairman Frederic G. Donner issued a flat statement last Friday, devoid of the hedging that still marked the statements of his company's competitors the previous day.

"General Motors will offer this fall, at the time our other 1960 models are introduced, a distinctively new Chevrolet, to be called the "Corvair," which will add to the Chevrolet line a sedan of lighter weight, lower first cost and reduced operating expense.

In Canada, Too — General Motors of Canada has also decided to produce a Corvair. The car will be sold "by all franchised Chevrolet dealers in the U. S," he said.

"Without going into details . . . I can say this distinctive, smaller and lighter car embodies certain features which are new to the American automotive industry and represent a new concept in automotive transportation," Mr. Donner stated.

The Details—One model, two series in the line—a four-door sedan of unitized construction. Wheelbase is 108 in., overall length is 180 in. It will be powered by a rear-mounted, air-cooled, six cylinder, flat, horizontal opposed piston engine with an aluminum block. Introduction is set for Oct. 9.

Chevrolet will produce the Corvair in plants located at Willow Run, Mich.; Kansas City, Mo., and Oakland, Calif. The company said its plants and Fisher Body plants will employ 3500 workers at Willow Run, an additional 1000 at Kansas City, integrate production with regular lines at Oakland.

At the Ford stockholder meeting the previous day, Henry Ford II, president, told stockholders: "It is clear that an appreciable demand now exists for a new American-built economy car that is something more than the typical European small car, but something other than the conventional sized American car . . . barring changes in the market or other circumstances, we plan to introduce such a car during the 1960 model year."

Ford Falcon—He said the car is called the "Ford Falcon." It will be offered in two-door and four-door sedan models, two-door and four-door station wagon models. Also of unitized construction, the cars have a 109-in. wheelbase, and an overall length of 181 in. The engine is a conventional six-cylinder in-line engine with a cast-iron block.

Initially, it will be built at Ford's Lorraine, O., plant — despite protests from union pickets outside the stockholders' meeting asking that the Falcon be built in Ford's Rouge plant to help ease Detroit's acute unemployment problem. The car will also be assembled in Canada. Tentative introduction is set for Oct. 16.

Chrysler Valiant — Shortly after the Ford announcement, Chrysler president L. L. Colbert said Chrysler's light car will be named "Valiant," and "unless our plans are changed by something unforeseen," it will be produced as part of the 1960 line of cars.

Not mentioned in the statement: Valiant will have a 106-in. wheelbase, be 183 in. long overall, and be offered in two-door and four-door sedan, and two-door station wagon models with semi-unitized construction.

The engine will be a new, front-mounted, six-cylinder in-line engine.

Heat Treating Sales Gain

Industrial heating group reports April orders topped those for entire first quarter.

Steel mills head list of furnace buyers but induction sales run double the '58 rate.

■ If you've been thinking about ordering a heat treating furnace or an induction unit it might be a good idea to get your inquiry out right now.

For this industry is definitely sharing in metalworking's new buying surge. Some furnace builders are now booked through October. A few months ago these shops were creaking along with skeleton forces and backlogs you could put in your eye. Overtime is up, some find engineers scarce.

Gloom is Gone — Meeting last week at Hot Springs, Va., members of the Industrial Heating Equipment Assn. were more optimistic than they've been in years. So far, the buying wave has not yet hit all builders. Except for steel company orders, there is room for improvement. But April was a whopper.

Furnace orders for the first four months of 1959, at some $25.7 million, are nearly double the $13.2 million figure for the same period of 1958. And inquiries are on the increase. April orders alone topped those booked during the entire first quarter of this year.

Gains 129 Pct—Induction heating equipment has posted big gains too. January-April 1959 volume amounted to $4,150,000 — against $1,812,000 in the first quarter of last year.

In that field, where steel industry buying is a minor factor, improvement has been fairly general. W. E. Benninghoff, who is vice president, The Ohio Crankshaft Co., and general manager of Tocco, and J. A. Logan, head of the newly merged Ajax-Magnethermic Corp., are both optimistic about the order outlook. Their backlogs are at least double what they were at the beginning of the year.

Furnace Field is Up — H. M. Heyn, president, Surface Combustion Corp., told The IRON AGE, "We have budgeted for 25 pct more business than we had last year. Modernization is paying off for the steel mills. The situation in automotive and farm equipment is a bit different. We're getting some obsolescence business—but their plants are so modern now that we don't look for a big push until they need more volume."

R. A. Schoenfeld, vice president, industrial division, Lindberg Engineering Co., says that business has picked up across the board, particularly in steel, ceramics and nonferrous. Lindberg now has a six-month backlog.

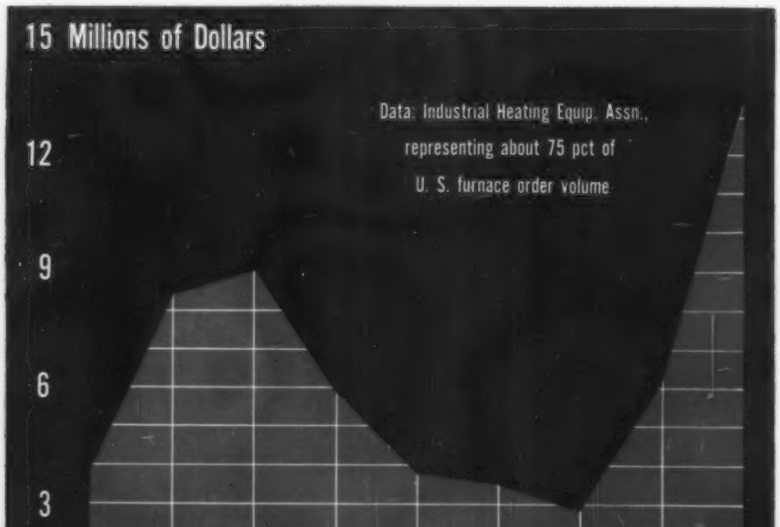
The chemical industry has a lot of new projects in mind, T. H. Wickwire, president of Trent, Inc., noted. Some are fully engineered and ready to go. When and if they turn these loose he feels that it will mean quite a boost in many areas.

Still to be heard from in volume is the automobile industry. Some of the heating equipment executives at the meeting report a few orders from that area; others say it's still flat.

Export orders for furnace continued their climb during 1958 and the first quarter of 1959—a trend which began in 1957.

First quarter '59 exports of furnaces totaled $2,262,000 compared to $1,508,000 in the same 1958 period. And induction equipment exports, at $310,000, were double those in the first quarter of 1958.

Furnace Orders Soar



How to Save on Service Center Orders

Here's how service center buyers at Pittsburgh and Cleveland can use new item quantity discounts to reduce their steel costs:

Warehouse prices for these cities are now quoted on a 2000 lb single item quantity basis. (See price table on p. 171.)

Assume a Pittsburgh buyer is ordering hot-rolled bar which sells at $8.62 a cwt. By checking discount table below he finds an order of less than 999 lb will cost him an extra $1.85 a cwt. Even if he adds other products and raises order to 20,000 lb size, he still has to pay an additional charge of $1.35 a cwt.

But suppose he raises his hot-rolled bar order to 2000 lb. Then he pays only the base price, no extras, no discounts. And if he combines the 2000 lb of bar with other products in a 20,000 lb order, he gets the bar at 30¢ less a cwt.

Here's the full range of item quantity discounts and premiums:

Total Order	Item Quantity Discounts and Extras						
	10,000 lb and over	5000 to 9999 lb	2000 to 4999 lb	1000 to 1999 lb	400 to 999 lb	100 to 399 lb	Under 100 lb
20,000 lb and over	—.65	—.55	—.30	+.20	+1.35	+5.35	+8.35
10,000 to 19,999 lb	—.55	—.45	—.20	+.30	+1.45	+5.45	+8.45
5000 to 9999 lb		—.35	—.10	+.40	+1.55	+5.55	+8.55
2000 to 4999 lb			Base	+.50	+1.65	+5.65	+8.65
1000 to 1999 lb				+.60	+1.75	+5.75	+8.75
400 to 999 lb					+1.85	+5.85	+8.85
Under 400 lb						+6.10	+9.10

New Warehouse Pricing Favored

Buyers prefer the new system of item quantity discounts now used by Pittsburgh and Cleveland service centers.

By skilled buying they can reduce steel costs. But unplanned purchases may now cost customers more.—By K. W. Bennett.

▪ Customers seem to like the new warehouse pricing system now used at Pittsburgh and Cleveland.

Reaction since it was introduced (see The IRON AGE, May 14, p. 113) is generally favorable. Service center users believe with a little planning, a buyer can save money. Without it, the new pricing is going to boost steel costs.

Key to Savings—Correct use of the item quantity discounts offered for larger-sized orders is the key to customer savings. By using them a large Pittsburgh electrical equipment maker expects to cut service center purchase costs by 5-12 pct.

This company buys plate, sheet, bar, and bar shapes from warehouses. Average orders range from 3000 to 5000 lb. The purchaser hopes to earn savings of 1.5 pct on the smaller orders. For those at the top of the range savings of 22 pct are predicted.

Positive Proof — One smaller buyer, Keystone Fabricating Co., Inc., has already racked up substantial savings under the new system. When it was announced, Keystone refigured a fabricating job on the basis of the revised pricing. (Originally the work had been quoted on previous warehouse prices.) Under the new pricing 90 tons of structural were bought at savings of $1640.

But poor planning can increase the size of steel bills. A buyer placed a typical order with his distributor for 16 items totalling 8800 lb. Under former discount pricing, the steel would have cost $901.40. But with item quantity pricing, his bill was over $1000.

However he adds, "By talking with other buyers I've concluded we simply have to begin combining items, rather than quantities of times. In the long run we believe we'll have reductions."

Since maximum savings are possible for purchasers of the most popular warehouse items, the system saves the buyer dollars.

The Pressure Is on McDonald

Will He Resort to 'Divide-and-Conquer' Tactics?

Steel management's stonewall policy has all but stymied union strategy.

McDonald has to decide if he wants a piecemeal or industry-wide strike.—By Tom Campbell.

1959's Union-Management Crisis

▪ Bucks, men, and tigers charge when they are cornered. Old steel hands at the negotiating game are speculating on when steelworker Dave McDonald will "let fly."

Each day he has appeared before the press to engage with steel negotiator R. Conrad Cooper in statistical gymnastics, his increasing discomfort has been apparent.

Sour on Publicity — Last week Dave's disdain for the public statistical approach and the now well-known Cooper coldness found an indirect outlet against one of his own people.

When Arthur Goldberg, the union's chief counsel, quietly suggested that each side should brief the press with a question and answer economic session, Dave would have none of it. His disagreement came so quick and was so obvious that it wasn't necessary for Mr. Cooper to painfully make up his mind whether he was in favor of such a daily seminar.

Or Maybe a Slow Burn?—Taken at more than its face value, this exchange—which a day later resulted in a one- or two-minute short-shrift press conference — is most significant. It means neither side has or will budge from its stand.

Dave McDonald may be building up to a slow burn. And because of this is seriously studying possible strike strategy. The usual thing would be an industry-wide strike. But that could be modified this year.

Dave's Dilemma—If Dave strikes the entire industry, as he has in the past, or invokes the no contract-no work edict, the mills will go down and both sides will "sit it out." Dave could hope that the government might move in, or that the Defense Dept. may get into the picture because of the Berlin situation.

If Dave decides to attempt the divide-and-conquer move he will have his problems: More so than will the steel companies. If some steel workers are idle while others are at work, it won't help union morale—or the outcome of the 1961 union election.

Risk vs Gain—Unless Dave can see some real gain in a divide-and-conquer strategy, he won't use it. There could be some gain. If he wanted to dodge possible censure for calling a strike amid unemployment and supposed rank-and-file resistance, then he could well try the thing on "for size."

If he did, the steel industry would have to put its hands through its gray hairs, too. If Dave called a strike at one, two, or three steel plants, the other companies in the 12-company unit would have to make up their minds quickly. If they shut down en masse, then Dave would be pretty certain that their employees would qualify for unem-

Why Steel Won't Cut Prices

Mr. Blough Replies—During his appearance before the National Press Club in Washington last week, Roger M. Blough, chairman of U. S. Steel Corp., was asked about suggestions that the steel labor crisis might dissolve if steel companies would cut prices a modest amount in return for steel labor's foregoing increases in wage and fringe benefits.

Mr. Blough recalled that U. S. Steel Corp. tried just that in 1948, cutting its prices from $1 to $5 per ton. Other steel companies did not follow its example. U. S. Steel later was forced to increase its prices and give its workers higher wages.

Once Was Enough—"Having had that experience once, I doubt very much whether we'd want to do it again," said Mr. Blough.

The board chairman also reminded that steel labor has never voluntarily reduced or failed to increase its demands due to lack of profitability of steel companies.

Mr. Blough, who said in his prepared speech that steel industry profits already are too low, called attention indirectly to the probable harm that a price cut would cause a steel company with a marginal profit position.

ployment compensation pay and Supplementary Unemployment Benefits as well.

Hot Potato for Both—If the 12 steel firms decided not to shut down as a unit and 9 or more decided to stay open while one or three shut down, big problems would face both the union and the steel companies. This would be a blockbuster for Dave because he might not be able to hold the men at work at the plants not struck or, if he did, it might enrage those in the struck mills.

But steel managements would have their problems, too. If they decided to remain open, in those cases where the strike call was not made the mutual assistance plan would probably have to be put into effect. Under this plan, mills not struck would give financial aid to mills that were shut down.

The conclusion here is that headaches exist for both sides if Mr. McDonald should decide to muddy the steel waters with a piecemeal or staggered strike. Such a move would probably not change the labor-management positions one iota.

Wanted: Privacy—Last week both sides were well aware of the stalemated outlook. They have chewed over economic statistics so often and with such repetition that they are now in the "expert" class. Furthermore, the daily "press conference" has not added any sport for either labor or management.

Outlook Is Dim — As to the chance for an agreement by June 30, that's out, as has been reported by The IRON AGE for months on end. This is the year the steel companies have to fish or cut bait.

Speeches, releases, and long-hair dissertations have indicated no "give" in the steel side. Labor history and technique suggests no "give" on Dave McDonald's part. It would be silly to think there won't be a settlement within a couple of months after June 30.

Ferroalloys Boom

How Extensive Will It Be?

Sharp increase in steel and aluminum alloys use is seen by ferroalloy producers.

But a boom could be tempered by a steel strike, imports, and competitive materials.

■ Ferroalloy producers, already doing a brisk business, expect substantially larger orders in the near future from their two biggest customers, steel and aluminum.

Both these metals promise to be expanding alloy markets.

But even if ferroalloys do no better than hold their present share of steel and aluminum production, business is bound to show a hefty increase. Total steel production is expected to grow better than 3 pct a year until at least 1962. Wrought aluminum shipments during the same period may rise almost 9 pct annually. And aluminum castings sales projections point toward an 8 pct yearly increase.

The Whole Story—But alloy production of both these metals is expected to increase faster than overall production.

Carbon steel, for example, will probably show the same near-future growth rate as overall steel—about 3 pct. But customer quality demands are leading melt shops to crowd upper limits of manganese and silicon for carbon specifications.

Stainless Trend—Similarly, it is anticipated that rimmed steel, which now accounts for over 80 pct of all ingots teemed, will decline in volume while killed output will rise.

Present estimates put stainless steel growth at 6 pct a year, with estimators cautioning that this may be conservative.

Aluminum in Autos—With both eyes fixed firmly on Detroit, silicon producers expect great things from aluminum, especially castings. Anticipating a die-cast engine block, aluminum die castings production could zoom 12 pct a year between now and 1962. Permanent mold business should climb 5 pct. Sand castings, meanwhile, are expected to hold virtually steady.

Alloy steel overall will grow no more than 2.5 pct annually, but electrical alloy grades within this group will show as high as 4.5 pct yearly jump—good news for silicon producers.

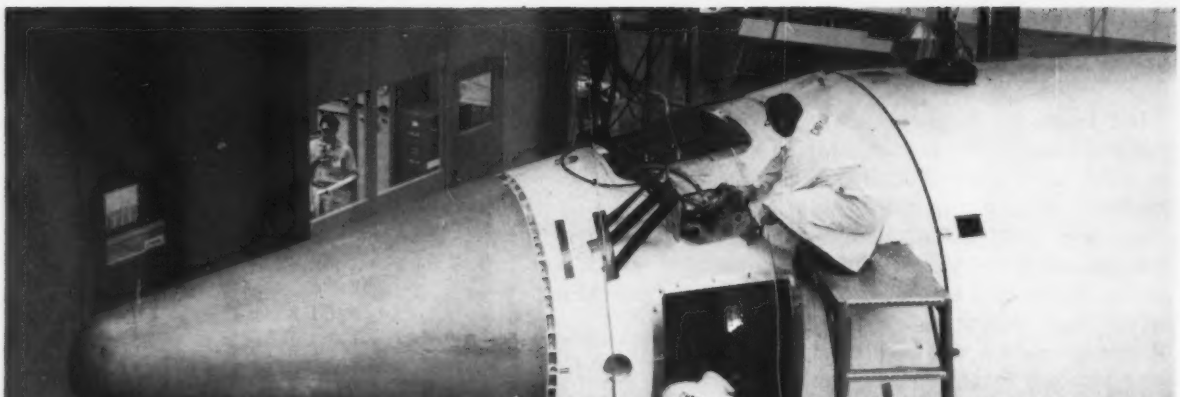
Ups and Downs—High speed and tool steel shipments are expected to rise about 2 pct annually in spite of competition from carbides. Alloy producers believe that declines in ferrotungsten will be more than offset by increased tungsten powder demand.

With one important exception, ferroalloy demand from iron and steel founders will show little rise above current levels. Growth of other fabricating techniques, such as weldments, is stunting castings growth to little more than 1 pct annually.

But high-alloy steel castings, with boosts from defense, turbines, and the like, may climb as much as 9 pct every year until 1962.

Strike Would Hurt—Since mills do not carry an appreciable inventory of ferroalloys, producers are resigned to a sales slump in the event of a steel strike. They, of course, anticipate a brisk recovery once the strike is settled.

Like other products in the steel market, imports are a harassment to ferroalloy producers. Both Europe and Japan are shipping material here. The Japanese product is reported to be of especially high quality, while European alloys are described as "unpredictable."



READY FOR COUNTDOWN: Completed Jupiter gets final check at Chrysler before shipping to final destination.

How New Metalworking Skills Meet Challenge of Space

In the unglamorous shops of missile makers and suppliers, new metalworking frontiers are explored every day.

Unheard-of degrees of reliability and quality are demanded. But metalworking plants meet the challenge.—By T. M. Rohan.

▪ Far removed from the glamor of missiles going aloft from Cape Canaveral, an army of dedicated aircraft and missile parts makers is daily fighting its own grim battles. And the going will get tougher before it gets better.

Suppliers of millions of parts are an industry in itself—a $20 billion industry. They are mostly off in a corner of traditional metalworking plants and rarely hit the statistics.

But missile makers and their parts suppliers are exploring new frontiers daily in metalworking—as radical in their way as the black boxes that point the way.

Tougher and Tighter—The new frontiers for the metalworkers lie in meeting a half or quarter of commercial tolerances with new, tougher heat-resistant materials being developed. Aluminum is still very strong in aircraft. And only a single big missile—the Atlas—has stainless skin. But on newer Mach 3 aircraft like the B-70 Valkyrie chemical bomber and F-108 fighter, both over 2000 mph—alloy steel will be a major substitute. After that, vendors will be working with beryllium, columbium, tantalum, tungsten and molybdenum alloys.

Some intricate parts are down to 20/millionths of an inch tolerance, especially on valves and other intricate parts.

Razor-Sharp — Welding is becoming increasingly strong because of weight savings. Some forged steel sheet the thickness of a razor blade is being butt-welded under inert gas. Thicknesses are 0.005 in. with only 0.001 in. re-inforcement because it cannot be ground.

Bars, billets and forgings are almost all vacuum melted and subjected to inspection by macro-etching, magnetic particle, X-ray and ultrasonics: Most is done by sup-

NEXT WEEK:

Shift to Mobility

The Military's emphasis on mobility and its effect on new metals in defense is the subject of Part 3 of this series on the changing concepts of defense.

pliers and requires affidavits.

Heat treating is done only in certified furnaces with test pieces used throughout.

Focus on Fabrication—Castings, especially investment - cast turbine and compressor blading, get inspection by X-ray, fluorescent penetrant and mechanical property testing of separate test bars.

For engine builders like General Electric at Evendale, O., sheet metal fabrication is the biggest headache.

John McCabe, manager of the Production Engine Dept. laboratory says:

"In many respects, the greatest production difficulties have been encountered in manufacturing sheet metal assemblies. The major processes involved are annealing, drawing, forming, stress relieving, welding and hardening. Close control of heat treating, welding and pickling processes is mandatory, particularly in handling titanium, air hardenable alloy sheets and age hardenable materials.

100 Pct Reliability—"In manufacturing aircraft parts, welders must be trained and certified in various classes of materials, and recertified at periodic intervals thereafter. All resistance type welding machines must be tested and certified for each different job and test pieces made at periodic intervals during the working day."

Most parts are designed out to 95 pct of the load at which the metal will break. And the risk must be made up by exhaustive testing and re-testing of individual parts, systems and finally entire missiles. And throughout all, the single quality most sorely needed is "reliability."

Tough Combinations — A top missile parts maker has this to say:

"We buy millions of dollars worth of parts per year for missiles. The toughest nut in the whole business is getting 'reliability.' We can lay out all the specifications for parts, tell exactly their dimensions. composition, weight, shape and all the rest.

"And the parts especially in elec-

New Frontiers for Metalworking

In the drive to penetrate outer space, new materials, processes and standards of quality are under constant search. Here are some current Air Force-financed research programs:

Wide Sheet Program—U. S. Steel is refining its sandwich rolling of alloy sheet about 125 in. in width and 240 in. in length on existing mills. Target is thickness variations only a fourth as great as present allowable AISI tolerances.

Precision Forgings — Minimum draft forgings of aluminum and steel are showing 40 pct better fatigue characteristics.

Tool and Die Making—Absolutely uniform parts in small quantities are being made with a new type die heated to about 1600°F. Dies are cast and die life can be sacrificed for uniformity.

Inert Gas Fabrication—An entire shop room at Universal-Cyclops is being filled with inert argon gas for fabricating tricky alloys.

New Materials—Beryllium structurals are being rolled in angles and complex shapes as well as sheets. Other materials worked on are columbium alloy sheet, tantalum, tungsten alloys and molybdenum.

NEW SHOP SCENE: Machining rocket and missile parts, like this rocket nozzle at Thompson Ramo Wooldridge, is now a regular scene as metalworking plants extend technology to meet space demands.

In reliability, 100 out of 100 or 1000 out of 1000 is such a new concept to most that it doesn't get through.

trical components can meet all these specs and still not work as part of a larger assembly. It's not the individual parts but in their combinations that the foul-up starts. And the problem isn't price either. The Defense Dept. keeps stressing reliability in its bulletins but it just doesn't seem to sink in," he says.

Best Not Good Enough—Your average part maker has probably been turning out a similar standard item for years and had low failure rates. But the parts will let go in missile work because the safety factor isn't there.

"We have to assume the shortest period encountered before any failure as our maximum rated service period. If we could only get the parts suppliers to put that little extra into the product which he knows should be there but we probably don't, there'd be a lot less blood and sweat and more hardware in orbit."

Hard Goal to Reach—Another subcontractor echoes the reliability theme.

"Probably our biggest worry in aircraft and missile making is getting reliability into the parts we make ourselves and get from vendors," says a leading Cleveland quality control executive. "We keep stressing it to our suppliers and own inspectors, but 100 out of 100 or 1000 out of 1000 is such a new concept for most that it doesn't get through.

"In regular commercial production, for example, a firm may make 100 parts, spot check one out of 10 or 20. They might find one bad one and ship the 99. In the missile business we would like them to first make 100, completely test them all and then ship their best one."

Failure Examples — Although gearing seems rather out of place for missiles, it is a critical element. Here over-caution has sometimes worked its mischief. Some gears have been specified for RMS-20 finish on the face of the gear. An over-zealous manufacturer lapped them to a mirror-like No. 4 surface which is commendable except it wouldn't hold oil and so would burn out.

In another missile part, 3 pieces of critical torque-carrying aluminum were to be welded together. They were made by different vendors. One did heat treating before welding only and two did pre-heat and following up because of a difference in equipment. When finally brought together the parts didn't match. Now complete heat treating descriptions must be carried on the drawings. Fortunately the odd pieces could be culled out through serial numbers.

Wider Stainless Needed — Wide flat heat-resistant stainless steel sheets—a half or quarter of commercial tolerances—are one of the biggest present and future needs for planes and missiles. They must be of uniform thickness or incomparably valuable weight is lost. Plane builders vidigage entire sheets and the thinnest section becomes the working dimension and all thicker portions are overweight.

In a plane like the new North American B-70 chemical bomber, for instance, an excess of 0.001 in. over the entire skin would add perhaps a ton.

Wider sheets are on the way. Meanwhile North American's Columbus, O. plant is having sheet ground, rolled or chemically milled to get within flatness tolerances.

Hogging Problems—The old aircraft problem of hogging out special chapes from solid billets or forgings of aluminum was tedious at best. Now they have to hog parts out of tool steel billets using special carbide cutting tools and cutters. On some forged alloy billets for plane production at North American's Columbus Div., finished weight is half or less the original billet. Machining speeds are about 65 surface fpm compared to 1500 sfpm with aluminum.

Tool Steels, Too—Newer planes will use alloy and tool steels plus some precipitation hardening grades, especially in honeycomb. The new concept is that stainless honeycomb sandwiches will be used on most if not all the outside surfaces and inside structures of Mach 3 airplanes.

As in World War II when airplanes rolled off the assembly line, aircraft today is getting a big assist in the missile business from autos. Chrysler Corp.'s Missile Div. at Detroit has accomplished one of the best records with Redstones and Jupiters.

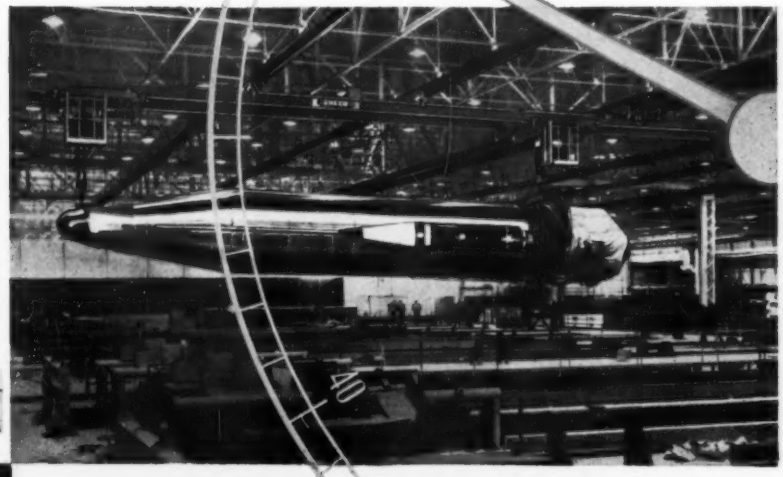
Half for Subcontractors—On the $213 million Redstone program from January, 1957 to August, 1960, 51 pct of the dollar volume, or about $108 million, comes by procurement from subcontractors—2409 of them across the country.

Most of the more troublesome techniques are worked out on home grounds before going out for subcontract and some never do go out.

"We are not so much precision conscious as reliability conscious," says John F. Patrick, quality control manager of the division. "The only areas we are running into close mechanical tolerances are in valves and guidance and control systems. In stabilizers we are down to ten thousandths and some millionths of an inch. On valves, about the closest is 0.00010 in."

"Complete and thorough testing and vendor inspection are our best assurance of conformance to a reliable design," says Mr. Patrick. Individual parts are first tested before assembly. After assembly, there is a simulated countdown of "the bird" to check all functional systems. This is followed by a simulated flight to check systems working together.

FROM CONSTRUCTION TO COUNT DOWN . . .



CRANE HOIST

handles the tough jobs

At Eniwetok, Crane Hoist Engineering Corporation of Los Angeles was selected to design and engineer the overhead materials equipment used in testing the H-Bomb.

Now, as before, Crane Hoist Engineering Corporation has been called upon to build the hoisting equipment; first with the construction of the mighty Atlas and the Bomarc, and now assisting the first Missile Division of the U.S. Strategic Air Command with the launching Complexes at Vandenberg Air Force Base. These service towers, each equaling a 13-story office building in height, represent some of the closest tolerances in fabricated structural steel ever performed.

At the bottom level, the tower was constructed on Crane Hoist's variable-voltage traction drives and two large hoists were designed and built by our engineers to raise the missile into proper service and launch position. At the tower's 122-foot level, Crane Hoist Engineering Corporation installed a bridge crane to lift miscellaneous gear into position.

Put the rugged dependability of Crane Hoist equipment to work for you. Whatever your load lifting requirements, Crane Hoist Engineering Corporation offers you maximum efficiency and economy of operation and maintenance.

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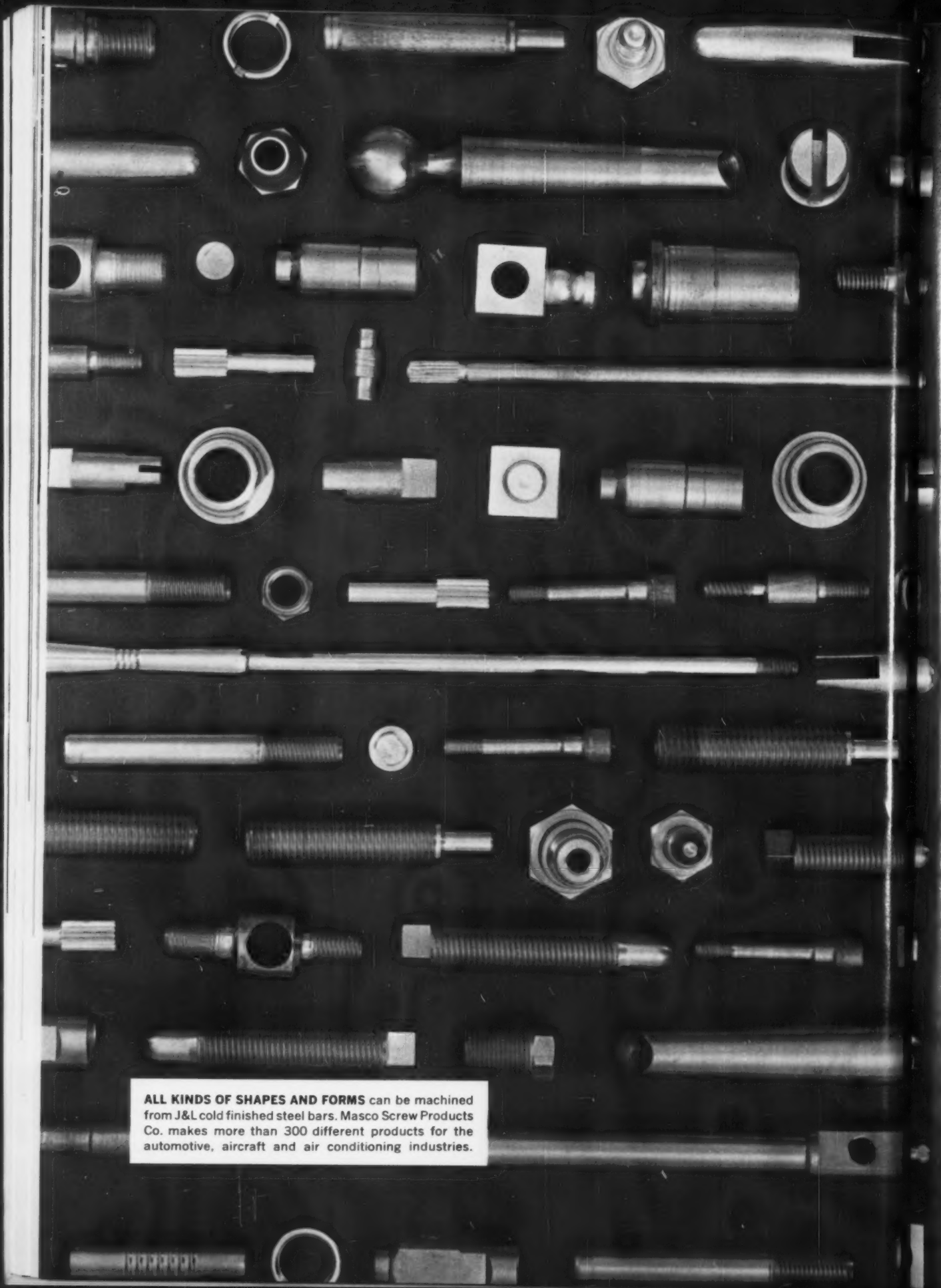


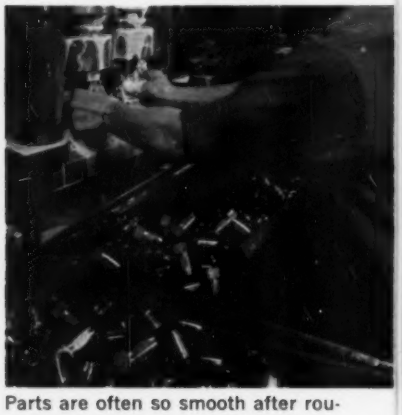
ALL KINDS OF SHAPES AND FORMS can be machined from J&L cold finished steel bars. Masco Screw Products Co. makes more than 300 different products for the automotive, aircraft and air conditioning industries.

Detroit's Masco Screw Products Company uses round, square and hexagonal J&L leaded steel bars in sizes from ⅜" to 1⅛"

More than 96 automatic screw machines are in almost constant operation

Production runs vary from less than 10,000 to more than 2,500,000 pieces

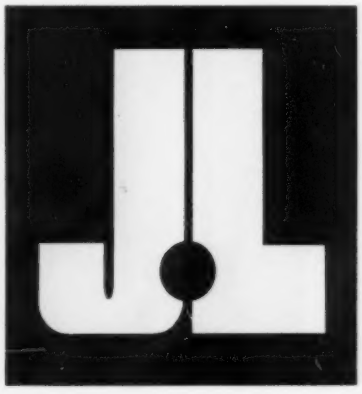
Even complex machining operations have fewer work stoppages with free machining J&L leaded steel



Parts are often so smooth after routine machining that no further finishing is necessary

Rigid Masco inspection procedures assure products of dependable quality

Masco regularly handles specifications calling for dichromate, chromium, and other protective coatings



"J&L leaded steel bars machine at maximum practicable speeds for screw machines"

. . . reports Masco Screw Products Company

"While we're seldom able to run our automatic screw machines at their maximum rated speeds, we've found that J&L leaded steel bars permit the fastest machining speeds practicable," says Alex Wood, plant engineer of Masco Screw Products Company, Detroit's largest independent manufacturer of screw machine products.

"The free machining properties of this J&L cold finished steel permit high speed production. The short length chips minimize tool edge build-up. Tool wear is reduced. And, frequently, fewer finishing operations are needed.

"This is a good steel for screw machine products."

Jones & Laughlin Steel Corporation

PITTSBURGH, PENNSYLVANIA

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Lewis P. Favorite

Making Markets for Aluminum

Many a ton of bauxite has been consumed since L. P. Favorite joined Alcoa.

Due to his efforts, many an aluminum ingot found its way into new products.

LEWIS P. FAVORITE: Fantastic growth is ahead for aluminum.

■ It's no accident that aluminum is the nation's No. 2 tonnage metal. After years of research and development, it took a lot of pavement pounding by missionary salesmen like Lewis P. Favorite to establish a market for aluminum.

Mr. Favorite, now vice president of product sales and commercial research, Aluminum Co. of America, was in near the start of aluminum's big push for recognition. He joined Alcoa's Detroit sales office in 1927.

Old Campaigner—He was in the thick of the 1940 campaign that brought about widespread use of aluminum in aircraft. At the time, he was working out of Alcoa's New York district office. During World War II, he helped coordinate activities that fed aluminum to aircraft producers for output of 1000 planes a day in the New York area.

Looking back, Mr. Favorite remembers that the close of the war left the aluminum industry with expanded facilities and the prospect of sharp defense cutbacks.

Ripe for Development—But, he points out, the industry gained two important assets: Thousands of people had gotten the "feel" of aluminum. And the aluminum companies had geared to the selling and education job needed for market development on a large scale.

The record speaks for itself. U. S. production of primary aluminum has grown from 410,000 tons in 1946 to over 1.5 million tons last year.

The Outlook—For the future: "Growth is going to be just as fantastic as in the past 15 years," predicts Mr. Favorite. Automotive, residential, and architectural markets offer the greatest promise, he says. Aluminum roofs are "positively the best." Like a true missionary salesman, he isn't overlooking smaller applications with growth potential.

In the current market, Mr. Favorite reports there has been a gradual growth of order volume. Few buyers are running scared. People have been filling pipelines, but not amassing heavy stocks.

He's Been Around — Born in Sturgis, Mich., Mr. Favorite attended Sturgis and Bay City, Mich. schools and the University of Michigan. During his 32 years with Alcoa, he also served in the company's St. Louis sales office and die casting plant at Garwood, N. J.

During part of 1956-57 he was appointed director of the aluminum-magnesium division of the Business and Defense Services Administration in Washington.

He now makes his headquarters at Alcoa's main office in Pittsburgh.

how to rustproof cold rolled steel in shipment and storage

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Even under adverse conditions, such as outside storing or shipping, Ferro-Pak provides complete protection. It is waterproof, strong, yet highly flexible and easy to handle. The chemical rust inhibitor is compatible with oil and stays effective for long periods even when the humidity soars.

Whether you're a shipper or a buyer of steel, it will pay you to specify Ferro-Pak wrapping wherever rust is a problem. For an interesting idea brochure on many uses for Ferro-Pak, write Cromwell Paper Company, 4805 South Whipple Street, Chicago 32, Illinois.

How to rustproof a freight car—Ferro-Pak is used to line sides of car and to interleave coils, transforming ordinary freight car into huge rustproof package.

How to rustproof black plate—On this light gauge, dry, uncoated steel, rust can start from a fingerprint. Ferro-Pak keeps black plate rust-free even when the humidity soars!

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"Paper Engineers" for Steel

Mid-Year Letup: How Serious?

Buildup of auto stocks adds to buildup of steel inventories. It means that more than steelmakers will be affected by steel negotiations.

Tightening of money may also contribute to a slowdown. But it's only likely to be temporary.

▪ There are two factors that are likely to slow the momentum of the still advancing level of business.

First is the after-effect of the steel labor crisis. Second is tighter money. Neither singly or combined are they likely to result in a severe damping effect on the movement. But they have to be considered.

Not All in Warehouses — One development of steel hedging is that all of the strike protection is not found in warehoused steel. In addition, manufacturers who can are now building up inventories of their own products.

Apparently a lot of the bulge in auto production is related to a steel dodge. At the first of May, unsold 1958's totaled some 844,000. This compares with 777,000 a month previously and indicates a buildup at the rate of 67,000 cars a month. (Statistical source: Automotive News)

Others Affected — The significance here is that a lot of people other than steelmakers will feel it if steel negotiations end with an oversupply of unsold 1959 models. The car buildup also explains why many were skeptical of claims of automakers that they would have enough steel to take them well into their 1960 model runs.

You just can't store that much steel in coils and bars. But apparently a lot of that steel is in dealer parking lots, along with a lot of other materials and parts in the finished product.

However, inventory figures are not too alarming. They are still below the record of slightly more than 900,000 cars in early 1956 and inventories can probably be worked off, even without a steel strike.

Tight Money—The other factor, tight money, can also hurt. Builders, who feel it first, now think there may be a decline in second half home starts. It may also have some effect in slowing down new capital goods spending. (See Special Report, p. 65)

Most financial sources assumed that the recent boost in the prime rate of interest would only mean an early increase in the FRB discount rate. It did not come immediately, indicating the FRB may not be ready to crack down as yet.

However, momentum appears to be strong enough to overcome these obstacles. Consumer demand for most durable goods is firm.

On the financial side, tight money talk is still in the future stage. It is not yet difficult to arrange financing and consumer credit is not extended to any great extent. But tight money will bear watching.

How Wage Rates Affect Prices

▪ More and more, serious economists put the blame for inflation on wage increases that exceed the rate of productivity gains.

Sidney Weintraub, of the Wharton School of the University of Pennsylvania and chairman of the Graduate Program in Economics, has published a new work that puts added emphasis on wage levels as the key factor in inflation.

Book Out—His book, "A General Theory of the Price Level, Output, Income Distribution and Economic Growth," (Chilton Co.) evaluates wage and price trends in relation to other economic factors. It shows that when the average wage and salary goes up at a rate in excess of the rise in average productivity, the price level also goes up.

Professor Weintraub contends that his study explodes many accepted economic theories and that his own theory can be used for predicting future economic developments.

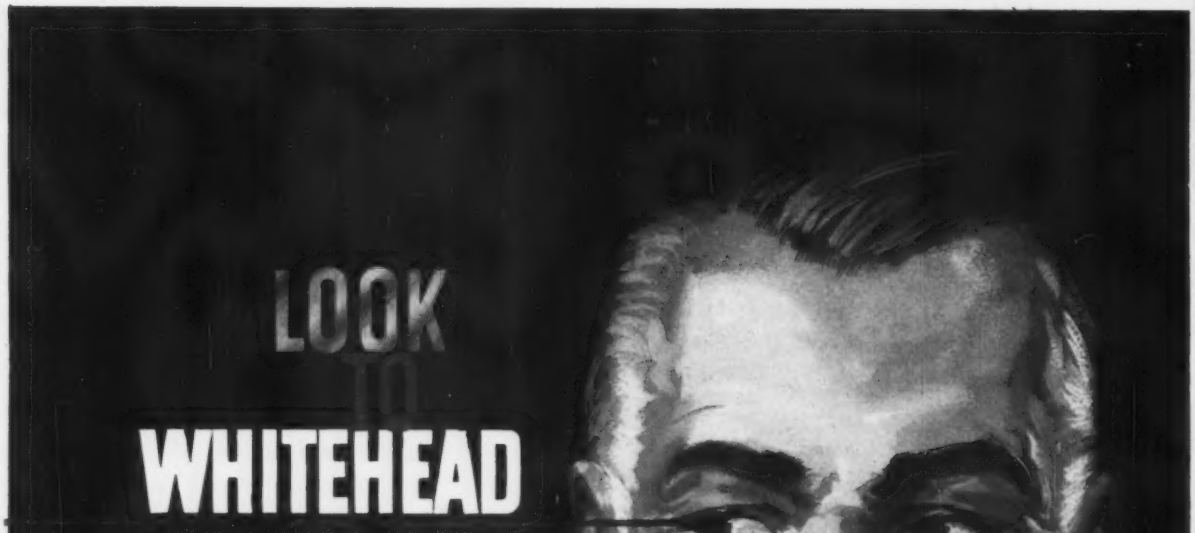
While the initial publication outlined here is largely high level economic theory, a practical version for businessmen and general readers will be published about Sept. 3. It will be called "Forecasting Price Levels, Income Distribution and Economic Growth."

New Business Records

The FRB Index of Industrial Production climbed to a new record in April. With a letup not likely until next month, the new standard of 149 will probably yield to another new high in May.

Seasonally adjusted gains were universal in most sectors of metalworking. Durable manufacturers rose 4 points, consumer durables one point with auto gains at 3 points.

Throughout the month, most business elements made advances.



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Battle Against Noise Goes On

Super-Sensitive Devices Help Find Trouble Spots

Engine and road noise has been largely overcome by acoustical engineers.

But other sounds which were drowned out before, grate on eardrums.—By H. R. Neal.

▪ Every time acoustical engineers silence one source of noise in a car it seems as though another one crops up to plague them. But the battle against noise continues, aided by super-sensitive detection devices.

Electronic noise detectors are now so sensitive they can hear a flower petal fall—yet they are selective enough to completely ignore the sound of a nearby dynamite blast while listening to the petal falling, according to Oliver K. Kelley, chief engineer at Buick.

Noise Is Relative—Another example of the selectivity of these instruments: "They can, for example, detect and record only the middle 'C' if all the keys of a piano are struck at the same time," Mr. Kelley says, "or pick out only the sound of a fan belt from all the noise of a running engine."

It was the sound of the fan belt that created a problem for Buick engineers. "When road noise was reduced 55 pct in the 1959 Buick and wind noise was cut to a mere whisper, fan noise became a problem," the chief engineer explains.

But Not Irrepressible — "Our acoustical engineers solved the problem by designing a new, long shaft for the fan. This extends it forward of the engine block and eliminates practically all noise-making recirculation of the cooling air."

Noises such as these produced by the cooling fan are called "non-mechanical" noise. Until recently they couldn't be heard because they were drowned out by engine and road noise.

Oddities of the Ear—But the human ear, which is less sensitive to changes in loudness or volume, will detect any low volume, high pitch noise it considers unnatural. To the motorist, then, the new noise is an irritation until it, too, is eliminated.

Lab on Wheels Aids Auto Research

Automotive engineering students at the University of Michigan will be able to study the actual effects of traffic, hills, highway driving and all over-the-road conditions on motor vehicle performance without ever having to leave the classroom.

In fact, the classroom itself is a custom-made laboratory-on-wheels designed for on-the-road studies of every aspect of motor vehicle performance (see photo).

Gift From Inco—Believed to be the only such vehicle in the world, it was presented to the university's College of Engineering last week by International Nickel Company, Inc.

The laboratory-on-wheels, a restyled General Motors coach sheathed in stainless steel, reportedly cost $150,000—two-thirds for instrumentation alone. Some 20 instruments, many especially developed for the vehicle, permit a vari-

LABORATORY ON WHEELS: A converted GM coach serves as a motor vehicle performance test lab for University of Michigan engineering students. The lab, which cost $150,000, was donated by International Nickel Co.

ety of road tests under actual operating conditions.

For Instance—Some studies that will receive particular attention from U of M's automotive research facilities with the aid of the new laboratory are: Exhaust gas analysis with respect to smog producing tendencies; air-conditioning of rapidly moving vehicles; corrosion problems in automotive structures; stress and vibration during road operation; and carburetor and intake manifold studies aimed at fuel economy.

The mobile laboratory is equipped for on-the-road studies of such subjects as fuel and air consumption; accurate speed measurements and volumetric efficiency of the power plant; acceleration and deceleration rates through various speed ranges; 24 temperature measurements throughout the vehicle, such as at spark plugs and crankcase and transmission oils; wind velocity and direction; battery amperage and voltage, and carburetor fuel pressure.

Colbert Forecasts

Barring the possibility of an extended strike in the steel industry, Chrysler Corp. president L. L. Colbert estimates the auto industry would sell about six million cars at retail in 1959—about 5.5 million domestic and the remainder would be imports.

Speaking on a business outlook panel at the 43rd annual meeting of the National Industrial Conference Board, Mr. Colbert said auto production is expected to be 46 pct higher in the first six months of this year than in the same 1958 period.

Past Experience—Based on present production schedules, he estimated industry production by the end of June at 3,272,000 passenger cars, compared with 2,244,000 in the first half of 1958.

"In our industry we have never experienced a year in which a retail market as good as the one we are having in the first half was followed by a poor market in the second half. The same factors that have been at work in the early months of the year should continue to have a favorable effect on our market in the second half," Mr. Colbert predicted.

Automotive Production

WEEK ENDING	CARS	TRUCKS
May 23, 1959*	133,739	27,295
May 16, 1959	135,856	27,051
May 24, 1958	86,082	18,043
May 19, 1958	87,407	16,755
TO DATE 1959	2,608,779	510,345
TO DATE 1958	1,837,896	360,387

*Preliminary Source: Ward's Reports

Are Imported Cars Here to Stay?

What will happen to the small, imported economy cars when the Big Three introduces their compact cars? David R. Crandall, national director of Simca sales for Chrysler Corp., believes "they are here to stay."

He reasons, "Whatever may happen in the small, domestic car field in the near future . . . there will be room for small imported cars, priced under $1800. That price class now is open, as far as American cars are concerned, and it looks as if it will continue that way in the foreseeable future."

Worm Turns — He noted that since 1953 more than a million imported cars have been sold in the U. S. In 1955, when the auto industry sold 7.2 million cars in the domestic market, he said that the U. S. exported more than 250,000 units—five times as many as it imported.

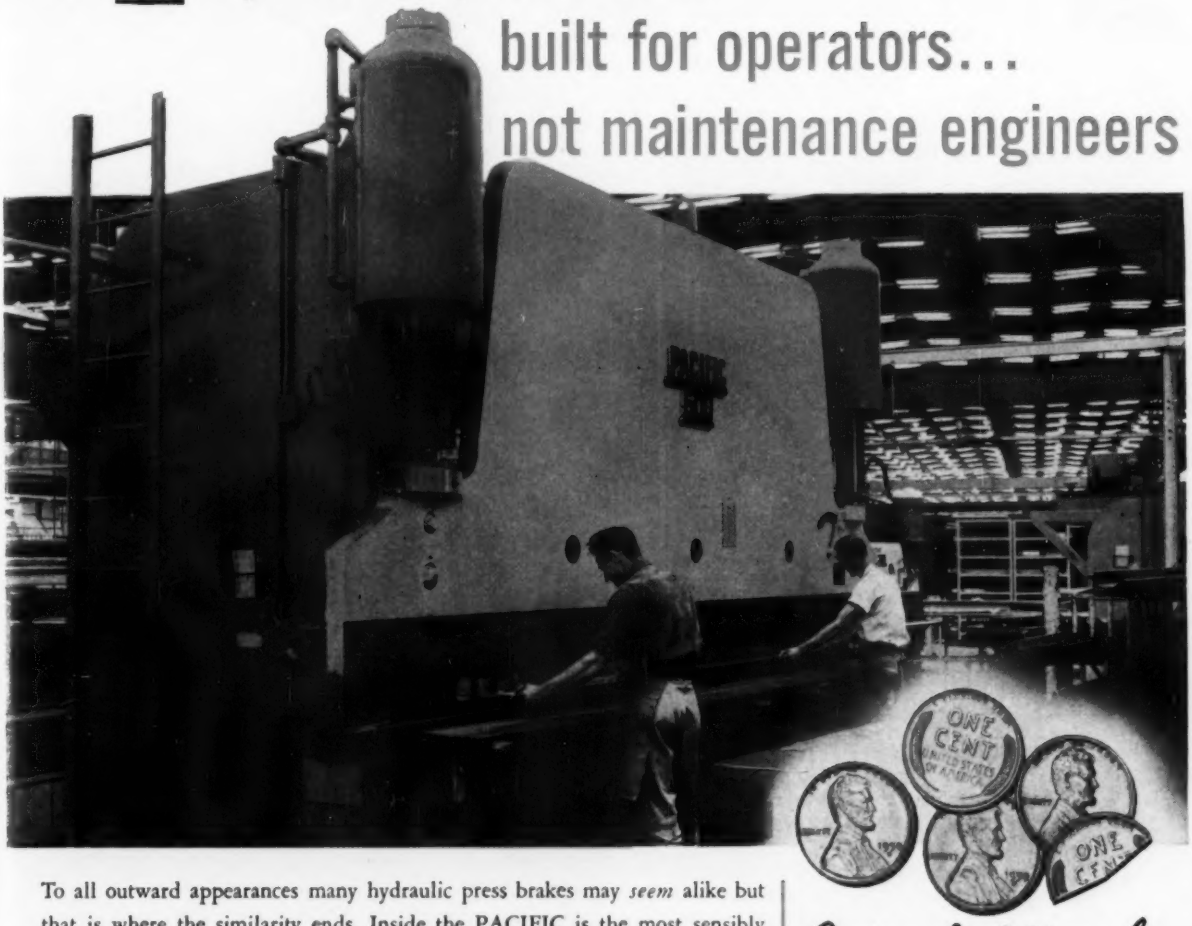
Last year, there were 378,000 imported cars sold in the U. S., nearly four times as many as the country exported. And this year Simca, competing against 75 different imported makes of cars now sold in the U. S., sold 13,296 cars in the first four months. This was 78 pct of Simca's total U. S. sales in 1958.

Meanwhile, sales of Simca's two larger competitors, Volkswagen and Renault, continue to grow.

The Bull of the Woods

NO SIR, NOT ME! I DON'T LEAVE MY WIFE DRIVE NO CAR I'M IN! YOU THINK I WANT MY NECK BROKE? NIX ON WIMMIN DRIVERS!
MY WIFE IS GOT ME BEAT IN TRAFFIC!
IF THAT GUY'S NECKTIE GETS CAUGHT IN THAT MACHINE, HE'LL ONLY HAVE TWO MORE DRIVES -- ONE TO TH' HOSPITAL AN' ONE TO TH' CEMETERY!
WELL, HE'LL BE ALL RIGHT-- THEY DON'T HAVE WIMMIN DRIVERS ON THEM RIGS!
T.M. Reg. U.S. Pat. Off. © 1959 by NEA Service, Inc.
THE CAREFUL GUY

The one hydraulic press brake built for operators... not maintenance engineers



To all outward appearances many hydraulic press brakes may *seem* alike but that is where the similarity ends. Inside the PACIFIC is the most sensibly simple, patented level control system ever devised . . . only 6 microswitches and 2 relays provide the precise PACIFIC accuracy that no other hydraulic press brake can even remotely approach. Free of lineal variable differential transmitters, electronic amplifiers, photo-electric relays, amplidyne generators, complex hydraulic servo-valves, variable volume pumps and other complicated gadgets, PACIFIC hydraulic press brake can be kept in continuous operation by the ordinary plant maintenance man without the costly services of a professional hydraulic or electronic engineer from some distant factory. PACIFIC can be maintained for pennies per operating hour . . . only a fraction of the cost of the complicated machines.

Costs only 4.4¢ per hr. to maintain . . .

EARNS $7.50 NET PER HOUR

Pacific Hydraulic Press Brake at Atlas Universal Service, Inc., San Francisco, has operated continuously 16 hours a day for 9 years and 27 days with average maintenance downtime of only 5.2 hours per year and a total maintenance expense of 4.4¢ per operating hour.

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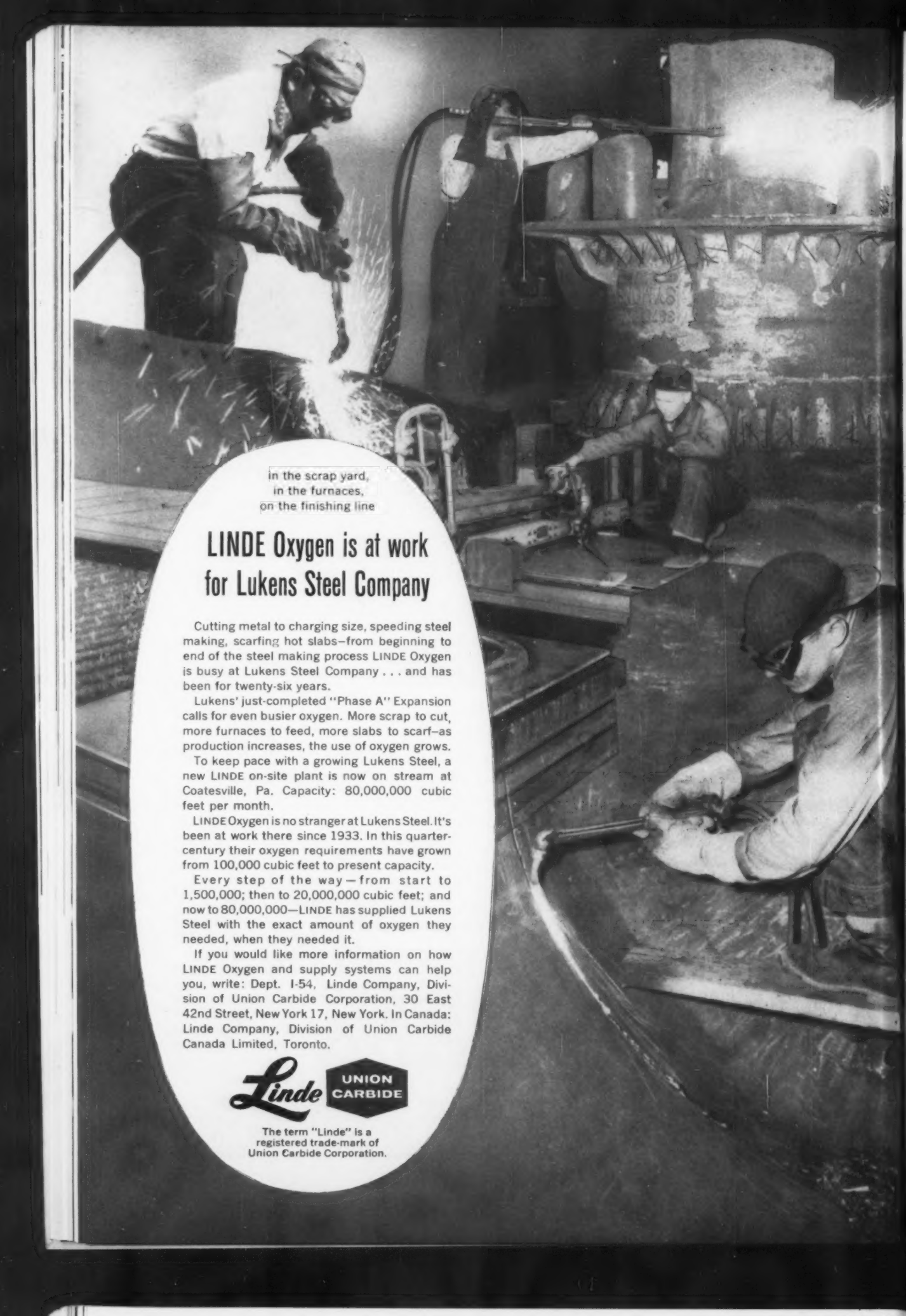

in the scrap yard,
in the furnaces,
on the finishing line

LINDE Oxygen is at work for Lukens Steel Company

Cutting metal to charging size, speeding steel making, scarfing hot slabs—from beginning to end of the steel making process LINDE Oxygen is busy at Lukens Steel Company . . . and has been for twenty-six years.

Lukens' just-completed "Phase A" Expansion calls for even busier oxygen. More scrap to cut, more furnaces to feed, more slabs to scarf—as production increases, the use of oxygen grows.

To keep pace with a growing Lukens Steel, a new LINDE on-site plant is now on stream at Coatesville, Pa. Capacity: 80,000,000 cubic feet per month.

LINDE Oxygen is no stranger at Lukens Steel. It's been at work there since 1933. In this quarter-century their oxygen requirements have grown from 100,000 cubic feet to present capacity.

Every step of the way—from start to 1,500,000; then to 20,000,000 cubic feet; and now to 80,000,000—LINDE has supplied Lukens Steel with the exact amount of oxygen they needed, when they needed it.

If you would like more information on how LINDE Oxygen and supply systems can help you, write: Dept. I-54, Linde Company, Division of Union Carbide Corporation, 30 East 42nd Street, New York 17, New York. In Canada: Linde Company, Division of Union Carbide Canada Limited, Toronto.

Linde UNION CARBIDE

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U.S. Is Stuck With Stockpiles

They're Obsolete, Costly, But They Can't be Sold

Streamlined technology means we no longer need vast stores of raw materials.

But selling government holdings would upset markets, so there's some sharp opposition. —By G. H. Baker.

▪ The government is not likely to dispose of its swollen stocks of metals and other commodities soon, if ever. Reason: Congress is under pressure from different industry groups to avoid doing anything that could depress prices.

For 12 years, the federal government has been accumulating mountains of aluminum, copper, rubber and other commodities believed likely to be in short supply in case of war or emergency.

In the late 1940s, military men, industrial management, and Congress all agreed such stockpiling was prudent and far-seeing. But technological change, plus a shift in our national concept of military readiness have dissipated some of the need for and the worth of our stockpiles.

For one thing, shifts in weapons technology have altered the value of some stockpiles. Example: Aluminum. Military emphasis today is on harder metals. Another: Modern nylon bristles for paint brushes have all but cancelled the value of the government's warehoused hog bristles.

Instant Warfare — The second major change that makes stockpiling open to question is today's lightning-fast concept of warfare. A nation that cannot retaliate within minutes with ready weapons will lose the war.

In two world wars and in Korea, the United States was blessed with time to build a military machine. Such a break is not likely again.

Why Bother—If modern weapons are not actually ready to repulse an enemy attack, there is almost no likelihood there will be anything left to defend, military experts now assure us. Hence, they say the concept of having comfortable inventories of stockpiled metals to build military hardware is obsolete.

Total value of the federal stockpiles is now well into billions of dollars. Commodities such as copper and aluminum won't rot. Others, such as rubber, deteriorate rapidly and must be rotated or the value disappears. But selling any of these goods on the markets—even gradually—would likely disrupt price structures. And a Congress fearful of recessions and depressions, is unwilling to permit the sale of much —if any—of its hordes.

Congress Keeps Tight Rein on NASA

Congress is ready to finance this country's space exploration program. But the lawmakers are going to keep close watch on how the money is spent.

The House has approved a $480.5 million budget for the new National Aeronautics and Space Administration.

Congress Has a Say—The authorization bill contains a provision requiring the new agency to obtain congressional authorizations each year for the next five years before seeking funds.

Boom May Balance the Budget

Taxes Are Rolling In—Booming industrial production is nudging Ike's budget into balance. The unexpectedly strong pulse of business means extra tax revenues from corporations, individuals, and from federal excises.

It all adds up to a much rosier financial picture than had been thought possible in January.

Government income in recent days and weeks is running way ahead of expectations. The deficit experts had thought "inevitable" in the new fiscal year may never show up.

How to Figure—Budget that Ike submitted to Congress in January was in hair-line balance—a fictitious balance, many opponents claimed, since it assumed Congress would vote higher gasoline taxes and postal rates. Such as assumption was politically unwarranted, critics said. They were probably right.

But the remarkable new vigor in industrial production this Spring indicates a balanced budget may be in sight without new taxes that usually annoy the public and frighten congressmen.

Exception — If Congress should start voting some costly federal projects not now included in the budget, all hope of fiscal stability will vanish, of course.

Helping the steel industry grow

Tapping a heat of steel from the new 100-ton electric furnace, one of the facilities added in the major expansion program of Lukens Steel Company.

Responsibility on the job

Responsibility for engineering, purchasing, cost control and construction in the just-completed expansion program of Lukens Steel Company, Coatesville, Pa., was assigned to United Engineers. The project included such facilities as 12 new soaking pits, the deepest in the United States—a new 100-ton electric furnace—and a new four-high 140-inch slabbing mill with giant back-to-back rectifiers supplying the d-c current for the motors. This is the first such installation in this country.

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Seattle Banks On Missile Work

Area's Future Geared to Space Age Programs

As Boeing goes, so goes the industrial health of the important Seattle area.

And Boeing is placing more and more emphasis on new projects involving missiles and jets. —By R. R. Kay.

▪ Seattle's future is closely tied to the missile.

The city's economic outlook, wrapped around the Boeing Airplane Co., is geared to these fast traveling "birds."

Added Boost—Recent announcement that the Senate Armed Services Committee is scrapping the Army's Nike-Hercules project in favor of Boeing's Bomarc IM-99 is a further boost to the Northwest.

Boeing is Washington State's largest industrial employer. As its fortunes go up—or down—so goes the rest of the region.

Pacemaker—A whole complex of subsidiary plants has sprung up to support the Boeing effort. Some of these companies have major contracts from outside the area. United Controls, Inc., is a good example of a firm that has been able to bring in other-than-Boeing business.

But basically it's Boeing that sets the pace. The Bomarc operations provide employment for about 13,000, most of them highly skilled technicians. For all its operations Boeing employs about 70,000 locally. In addition, subcontracting activities provide work for hundreds more.

Correct Emphasis — Besides its missilemaking, Boeing still remains a top-ranked plane builder. But it is placing more and more emphasis on jet plans designed for civilian use.

Typical of Boeing's success in this area is the 707 Jet Stratoliner.

Northwest Outlook

Few markets can match the expansion potential of the Pacific Northwest.

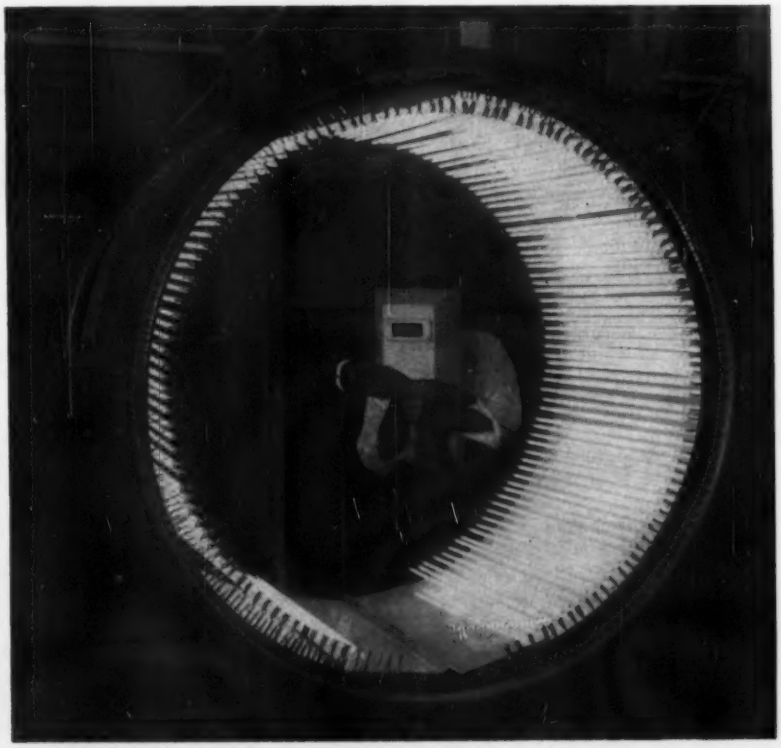
The Puget Sound Governmental Conference, a regional planning council, looks forward to a population there of 3.3 million by the year 2000. That's more than double the officially predicted population of 1.4 million next year.

More Kaiser Linepipe

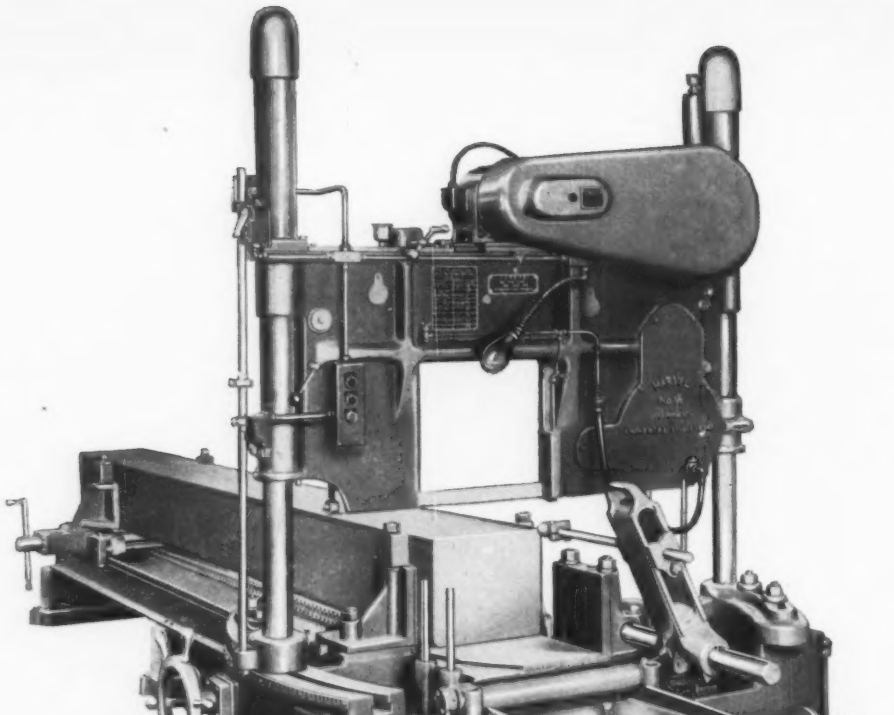
Kaiser Steel Corp. has completed an 18-month expansion project doubling the pipemaking capacity of its Fabricating Div. plant at Napa, Calif.

The expansion, which cost $2 million, makes the unit one of the largest pipeline mills.

Getting Set to Make Things Hot



UP TO 3000°F: This oven for testing missile, aircraft, and space vehicle parts under conditions found in high speed flight can create temperatures up to 3000°F. Equipment is located in research laboratory of Convair Division of General Dynamics Corp.



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They are reliably fulfilling the cut-off requirements in innumerable steel mills, forge shops, structural shops, warehouses, and machine shops, with assured low tool cost and minimum kerf loss of steel.

In addition to cutting-off, they are reducing costs by eliminating further machining operations. Heat treated die blocks are being reclaimed for re-sinking by sawing off the worn face; columns, beams, pipe, and tubing are being sawed to *finished*, square ends, eliminating milling; angular sawing is done conveniently by swinging the upper structure on the base, to any angle up to 45 degrees—*without moving the work*.

Contemplating the modern trend toward ever tougher steels and larger sizes, these are the logical sawing machines to buy, not only for today's needs but for tomorrow's as well.

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U.S. Industry Must Automate

It's the Way to Top Foreign Industry Advantages

Ralph Cross tells mechanical engineers it's up to top management to spark the trend.

And they must also persuade government to rewrite write-off rules.—By E. J. Egan, Jr.

▪ American manufacturers must automate on a bigger scale and faster if they expect to keep up with the rest of the world. And, it will be up to top management to spark and steer this all-out effort.

This blunt warning comes from Ralph Cross, executive vice president of The Cross Co., Detroit. His company is a leading builder of automated production equipment.

Markets Down the Drain — Speaking in his home city to the National Production Engineering Conference of the American Society of Mechanical Engineers, Mr. Cross pointed to the growing loss of traditional American markets.

He traced the shrinkage to wage and price differentials between U. S. and foreign-built products. Increased productivity is what American companies need to offset these differentials and reverse the market-loss trend, he maintains. And, he believes, automation will bring the needed productivity.

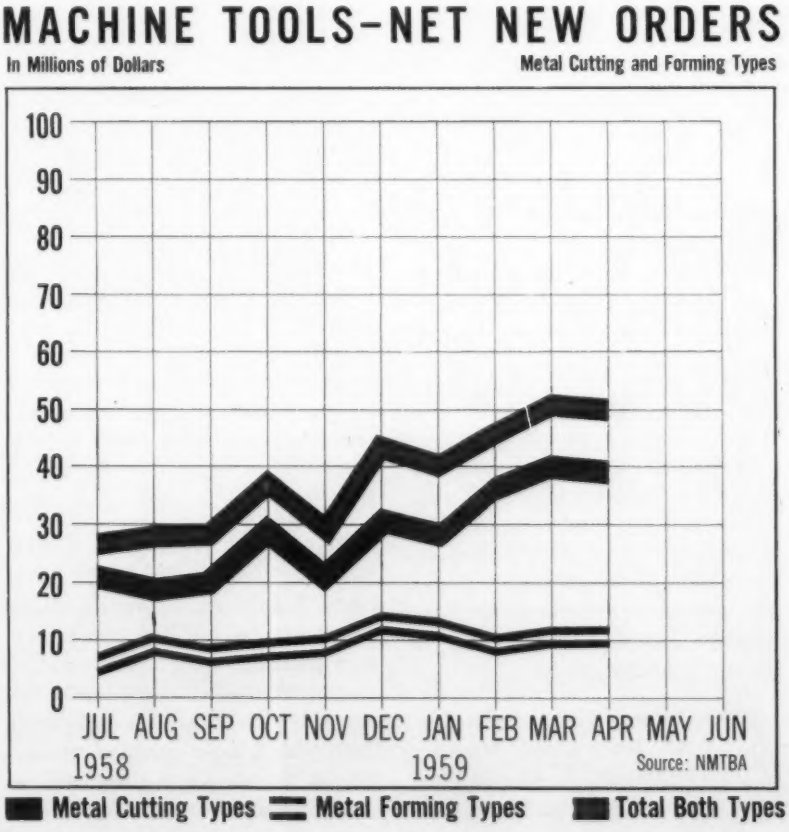
Management Must Lead — But top management must take the responsibility for realizing the full potential of automated methods, Mr. Cross emphasizes. It's a serious mistake to regard automation as a specialized problem that can be delegated down the line.

What about the huge capital investment it will take to automate U. S. industry to put the country on a par with other nations? In this important area, Mr. Cross tosses top management another responsibility: Persuading government to reform antiquated depreciation and tax laws relating to capital spending.

Savings Possible — In another Conference session, engineers got a bright picture of the savings to be expected with numerically controlled machine tools. E. E. Kirkham, chief development engineer of Pratt & Whitney, Inc., cited direct labor savings of "at least 65 pct" on jobs surveyed in his company and others.

"Of even greater value in some industries," he said, "may be certain other benefits: Reduced scrap . . . elimination of psychological slowdown on highly precise work . . . reduced elapsed time through the elimination of elaborate tools and fixtures. These intangible benefits provide a 100 pct bonus for the introduction of numerical control."

Mr. Kirkham doesn't consider the cost of numerical control prohibitive. "The increase in machine cost ranges from 20 to 40 pct for positioning machines, and machines equipped for contour milling cost 60 to 150 pct more than tracer controlled types."



INDUSTRIAL BRIEFS

Joint Effort—Inland Steel Container Co., Chicago, and the Van Leer group of container manufacturing companies, Netherlands, will operate a joint research lab in England and facilities in the Netherlands.

American In Georgia—American Can Co. will build a multi-million dollar plant in Clayton county, adjoining Atlanta, Ga. The plant will be capable of producing up to 400 million containers annually. It is scheduled for completion Nov. 1.

Slonaker Honored — Charles T. Slonaker, president, Hyde Park Foundry & Machine Co. was the guest of honor at the Annual Kiski Valley Industrial Appreciation dinner. Mr. Slonaker had been named for his leadership and contributions over a period of years to the economic life of the Kiski Valley.

Basic Engineering — Cerro de Pasco Corp., New York, completed its basic engineering studies for the improvement of facilities of the Monsanto, Ill. copper and brass tube mill of its Lewin-Mathes Co. Div. The company is anticipating building a new copper tube mill at Newark, Calif.

Heavy Water Reactor—Consolidated Western Steel Div., U. S. Steel Corp., is building at Los Angeles a reactor vessel and storage tank for the Atomic Energy Commission's plutonium recycle program at Hanford Laboratories, Richland, Wash.

Investment Castings Expansion—Arwood Precision Casting Corp., will expand and modernize all four of its plants, which produce ferrous and nonferrous investment castings. The plants are located at Los Angeles, Groton, Conn., Tilton, N. H., and Brooklyn, N. Y.

Filter Change—The Smith-Erie Div., A. O. Smith Corp., Milwaukee, has purchased the Micron Fuel Filter business from the Burks Co., Detroit. Machinery, tools, and inventory will be moved from Lapeer, Mich., to the Smith-Erie facilities at Erie, Pa.

SKF Expands — The Altoona, Pa., plant, SKF Industries, Inc., has launched a $4½ million expansion program to be completed by the end of '59. The modern ball bearing facility will have manufacturing and office areas increased to nearly 160,000 sq ft; employment will rise from 300 to 600 persons.

Ductile Iron — Three internationally known European experts in ductile iron will lecture during June 28-July 1 at the one-week ductile iron course to be held at New York University's College of Engineering.

Achievement Award—Keith D. Millis of The International Nickel Co., Inc. was presented the Annual Achievement Award in Metallurgy of the New York Chapter of the American Society for Metals (May 4). Mr. Millis is asst. to manager of Inco's Development and Research Div. at New York.

Stock Plan—Westinghouse Electric Corp., has authorized an additional 400,000 shares of the company's common stock for purchase through its employee stock plan and has extended the plan to Nov. 30, 1960.

Marketing Program — Federal Pacific Electric Co. will market under its own trade name all products of its wholly-owned subsidiary, Roller-Smith, Inc. The electrical instrument and apparatus company will continue its manufacturing operations under a new corporate name, Fifty Avenue L, Inc.

Big Money Award — W. D. Albright, Westinghouse Electric Corp., Sharon, Pa. received a $5000 suggestion award. It is the largest ever presented at the plant, and is among the highest ever paid by the company. Mr. Albright's suggestion dealt with a more complete utilization of the electrical steel used in the manufacture of transformers.

Acme Licensed — Kaisers Engineers Div. of Henry J. Kaiser Co., has licensed Acme Steel Co. to utilize the L-D Process patent rights for the production of steel in Acme's newly completed $32 million facilities at Riverdale, Ill.

Forging Consultant—Edward A. Ulvestad, asst. production manager, Kropp Forge Co., Chicago, has been named as consultant on forgings to the director, Iron and Steel Div., Business and Defense Services Administration, U. S. Dept. of Commerce.

Opens Sales Office—The Aristoloy Steel Div., Copperweld Steel Co., Warren, O., has opened a new district sales office in Pittsburgh. The office is located at 1107 Peoples East End Bldg., Pittsburgh 6. Pa.

Acquisition — Acoustica Associates, Inc., acquired the Universal Dynamics Corp., Santa Barbara, Calif., manufacturers of piezoelectric ceramics used in ultrasonic and sonar equipment.

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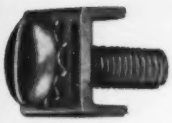

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CENTRAL SCREW COMPANY ..... *Chicago 9, Illinois*
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CONTINENTAL SCREW CO. ..... *New Bedford, Massachusetts*
ELTON MANUFACTURING CO., RELIANCE DIVISION ..... *Massillon, Ohio*
ECONOMY SCREW CORP. ..... *Chicago 14, Illinois*
ELCO TOOL & SCREW CORPORATION ..... *Rockford, Illinois*
FEDERAL SCREW WORKS ..... *Detroit 10, Michigan*
GREAT LAKES SCREW CORPORATION ..... *Chicago 27, Illinois*
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HARVEY HUBBELL, INC. ..... *Bridgeport 2, Connecticut*
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THE LAMSON & SESSIONS CO. ..... *Cleveland 2, Ohio*
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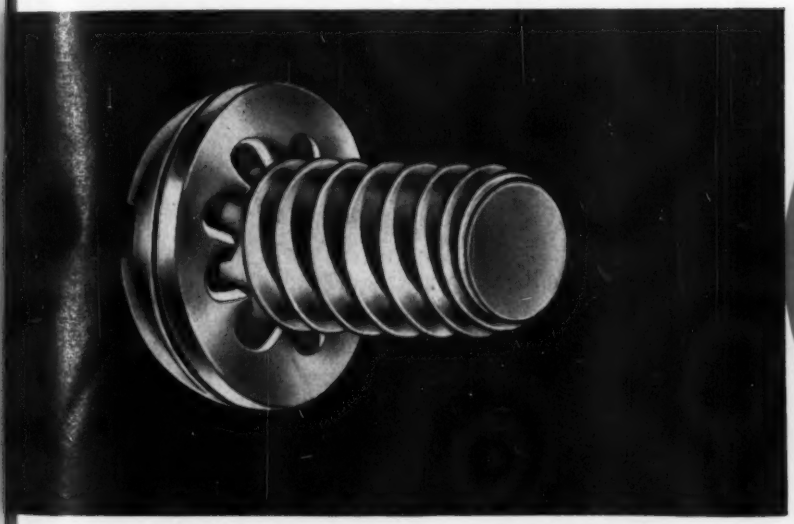

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Los Angeles 33, California; Rock Falls, Illinois
SCOVILL MANUFACTURING CO. WATERVILLE DIVISION ..... *Waterville 48, Connecticut*
SCREW & BOLT CORP. OF AMERICA ..... *Pittsburgh 33, Pennsylvania*
SEMS DIVISION, TEXTRON INDUSTRIES, INC. ..... *Rockford, Illinois*
SHAKEPROOF DIVISION, ILLINOIS TOOL WORKS ..... *Elgin, Illinois*
SOUTHINGTON HARDWARE MFG. CO. DIV. OF SCREW & BOLT CORP. OF AMERICA ..... *Southington, Connecticut*
THOMPSON-BREMER & CO. ..... *Chicago 22, Illinois*
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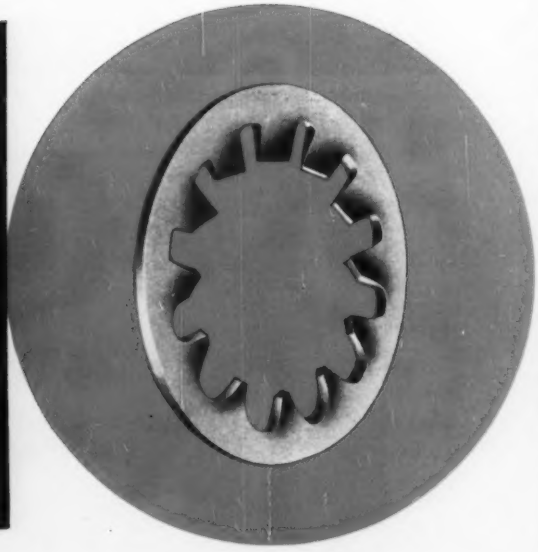

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ULTRASONIC TESTING

Locating laminations in 4 inch plate with a Sperry Reflectoscope at Electric Boat Division of General Dynamics Corporation, builders of the Navy's newest nuclear submarine, Skipjack, shown above.

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C. E. Rice, executive vice president, **Jessop Steel Co.,** Washington, Pa., has been elected a director of the company.

Frank Coolbaugh, appointed president, **Climax Molybdenum Co.,** Div. of **American Metal Climax, Inc.**

S. B. Twiss, appointed president, Cycleweld Chemical Products Div., Trenton, Mich., **Chrysler Corp.,** Detroit.

D. W. Lysett, appointed vice president, sales, **Long Manufacturing Div., Borg-Warner Corp.**

S. B. Miller, elected vice president, finance, **Fansteel Metallurgical Corp.,** N. Chicago; **J. H. Devlin,** elected comptroller; and **G. T. Brennan,** elected vice president, **Vascoloy-Ramet Corp.,** a wholly-owned Fansteel subsidiary.

J. P. Somers, elected vice president and director, **Wyckoff Steel Co.,** Pittsburgh; **W. C. Helfer,** elected secretary; **C. F. Koehler, Jr.,** appointed assistant vice president and **J. R. N. Miller,** appointed assistant secretary and assistant treasurer.

R. H. Lewin, appointed vice president, domestic nonferrous metal fabricating operations, **Cerro de Pasco Corp.,** New York.

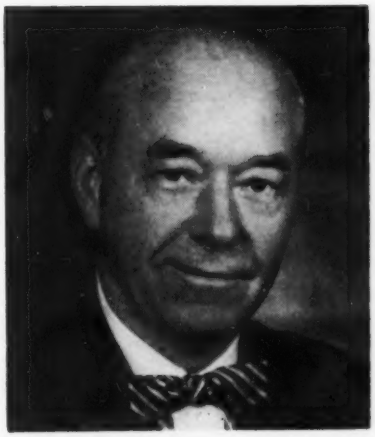
G. T. Bowman, elected vice president, **Rockwell Mfg. Co.,** Pittsburgh. He will be in charge of the International Div. and Petroleum and Industrial Div.

H. D. Hartough, elected president, Chemical Products Div., **Chemetron Corp.,** Chicago.

L. F. Heckmann, elected vice president, sales, **The Union Metal Mfg. Co.,** Canton, O.

Clifford Sands, appointed industry manager, rigid containers, and **P. C. Althen,** technical manager, **Aluminum Co. of America,** Pittsburgh.

J. R. Crossgrove, appointed specialist, marketing research, Foundry Dept., **General Electric Co.,** Schnectady, N. Y.



A. J. Kueber, president, Steel Warehousing Corp., Chicago, has been elected a director, **Jessop Steel Co.,** Washington, Pa.

R. A. McClure, appointed general superintendent, **Homestead District Works, U. S. Steel Corp.**

J. M. Dugan, elected vice president, operations, Lima Div., **The Ohio Steel Foundry Co.**

J. H. Cox, named division manager, Calco Div., Berkeley, Calif., headquarters, **Armco Drainage & Metal Products, Inc.,** Middletown, O.; **J. M. Robertson,** becomes manager, drainage and allied products

(Continued on P. 97)

N. H. Collisson, named operating head, Metals Div., **Olin Mathieson Chemical Corp.**

M. L. Herzog, appointed general manager, operations, Metals Div., **Olin Mathieson Chemical Corp.**

R. W. Adams, appointed manager, wire sales, **Aluminum Co. of America,** Pittsburgh.

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(Continued from P. 95)

sales, and **H. L. White,** as chief sales engineer.

E. B. Speer, named vice president, operations, **U. S. Steel Corp.,** Pittsburgh.

W. D. Macgeorge, appointed chief engineer, **Tatnall Measuring Systems Co.,** a subsidiary of **The Budd Co.,** Phoenixville, Pa.

J. W. Torrant, appointed industrial sales manager, **Morse Chain Co.,** a Borg-Warner Industry, Ithaca, N. Y.

D. M. Wakelee, named manager, Chicago office and warehouse, **The Stanley Works,** New Britain, Conn.

R. G. Vervaeke, appointed manager, **Pascagoula Works,** and **W. A. Tallon,** named geologist, **Refractories Div., H. K. Porter Co., Inc.**

J. R. Brown, Jr., appointed director, manufacturing, **Dresser Industries, Inc.,** Dallas, Tex.

D. P. Kipp, appointed assistant manager, Export Dept., New York, **Repubic Steel Corp.**

M. L. Duggins, appointed branch manager, St. Louis, **The Carpenter Steel Co.,** Reading, Pa.

Bridgeport Brass Co. vice presidents elected to the Board of Directors: **R. L. Allen,** vice president, sales; **W. J. Faust,** vice president,

(Continued on P. 98)

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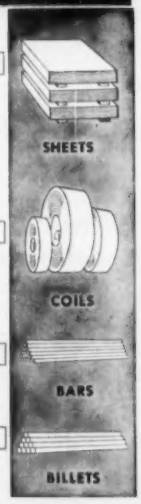

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(Continued from P. 97)

treasurer; **R. W. Summey,** vice president, operations.

R. E. Hebert, named manager, Vacuum Melting Dept., **Vanadium-Alloys Steel Co.,** Latrobe, Pa.; **C. J. Stalnaker,** will serve as product metallurgist in the department.

I. S. Servi, appointed director, research, Metals Div., **Kelsey-Hayes Co.,** New Hartford, N. Y.

J. E. Johnson, appointed assistant to the chief engineer, Buffalo steel plant, **Republic Steel Corp.**

J. J. Jacobs, appointed assistant chief engineer, West Allis Pump Dept., General Products Div., **Allis-Chalmers Mfg. Co.**

W. C. Wnuk, appointed industrial relations manager, **Michigan Seamless Tube Co.,** South Lyon, Mich.

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A. V. Kelley, promoted to general sales manager, **Nuclear Systems,** a division of **The Budd Co.,** Philadelphia.

R. W. Graham, named general manager, operations-steel, **U. S. Steel Corp.,** Pittsburgh.

L. H. Shippee, appointed director, purchasing, Automotive Div., **American Motors Corp.,** Detroit.

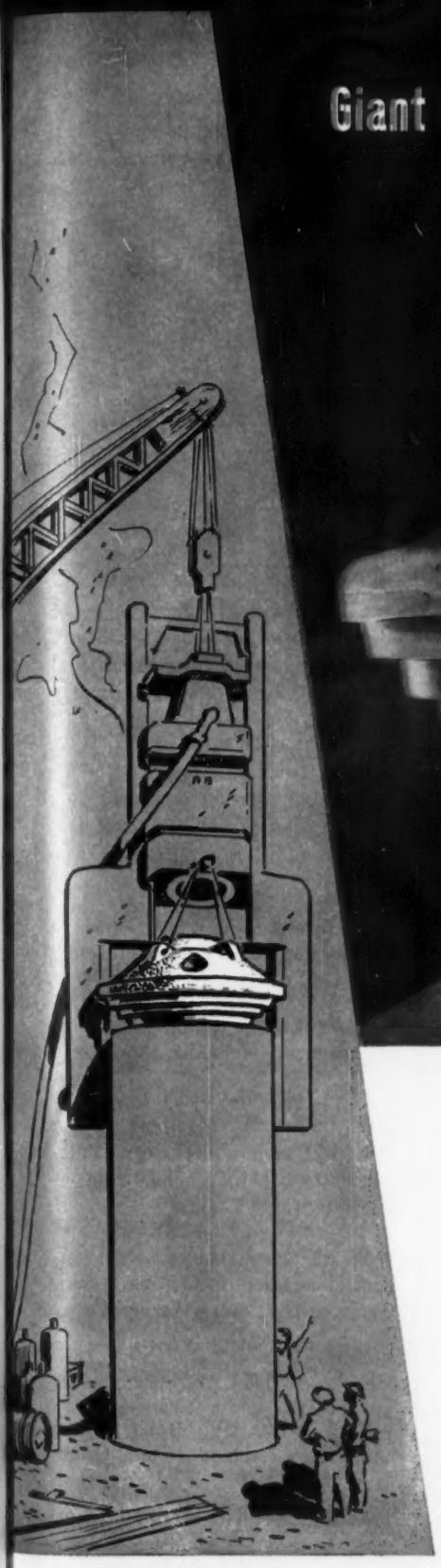
H. D. Lowrey, named assistant general manager, Missile Div., **Chrysler Corp.,** Detroit.

C. J. Betz, named manager, outside sales of industrial fasteners, **Standard Pressed Steel Co.,** Jenkintown, Pa.

W. J. Johnson, appointed manager, field sales, and **E. P. Williams,** manager, internal sales; **J. M. McCormack,** named assistant to manager, field sales; **A. M. Worsdell,**

(Continued on P. 100)

Giant Cast Steel "Top" For An Oil Explorer



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(Continued from P. 98)

assistant manager, internal sales, **Boston Gear Works,** Quincy, Mass.

L. S. Whitney, Jr., appointed vice president and general manager, **Stanley-Humason, Inc.,** Forestville, Conn., a subsidiary of **The Stanley Works,** New Britain, Conn.

L. H. Hoelter, named sales manager, water softener products, **Permaglas Div., A. O. Smith Corp.,** Kankakee, Ill.

T. R. Reagan, named field engineer, Detroit sales office, **Denison Engineering Div., American Brake Shoe Co.,** Columbus, O.

B. R. Walburn, named chief mining engineer, **Republic Steel Corp.**

H. L. Tomb, becomes district sales manager, Memphis office, **Jones & Laughlin Steel Corp.,** Pittsburgh; **J. R. Doran,** named resident manager, sales, Dallas.

W. E. Rowe, named vice president, manufacturing, **Long Manufacturing Div., Borg-Warner Corp.**

OBITUARIES

R. C. Stupp, 59, former general manager, Cleveland plant, **Oliver Corp.**

J. A. Lee, 57, director, procurement, Automotive Div., **American Motors Corp.,** Detroit.

Charles Penhaligen, 57, auditor, and member, finance committee, **The Dow Chemical Co.**

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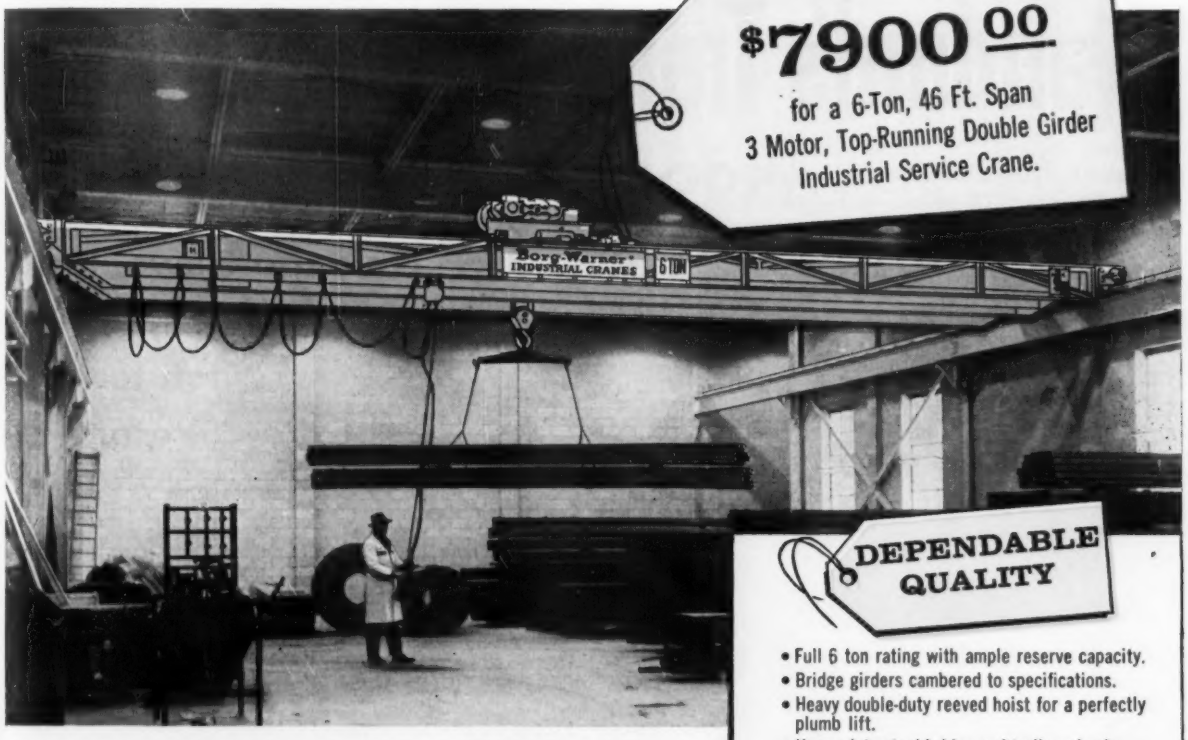

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Borg-Warner crane engineers and production men have taken a new look at the entire line and come up with important economies through extensive use of standardized interchangeable components. Because these savings are passed along to you, you get more crane for your money when you specify Borg-Warner Industrial!

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The crane illustrated is a typical double girder installation. Span may be shorter or longer with greater or smaller capacity and for lighter or heavier duty, intermittent or continuous. Whatever your overhead handling requirements Borg-Warner Industrial Cranes can supply your needs with quality equipment at a price you can afford!

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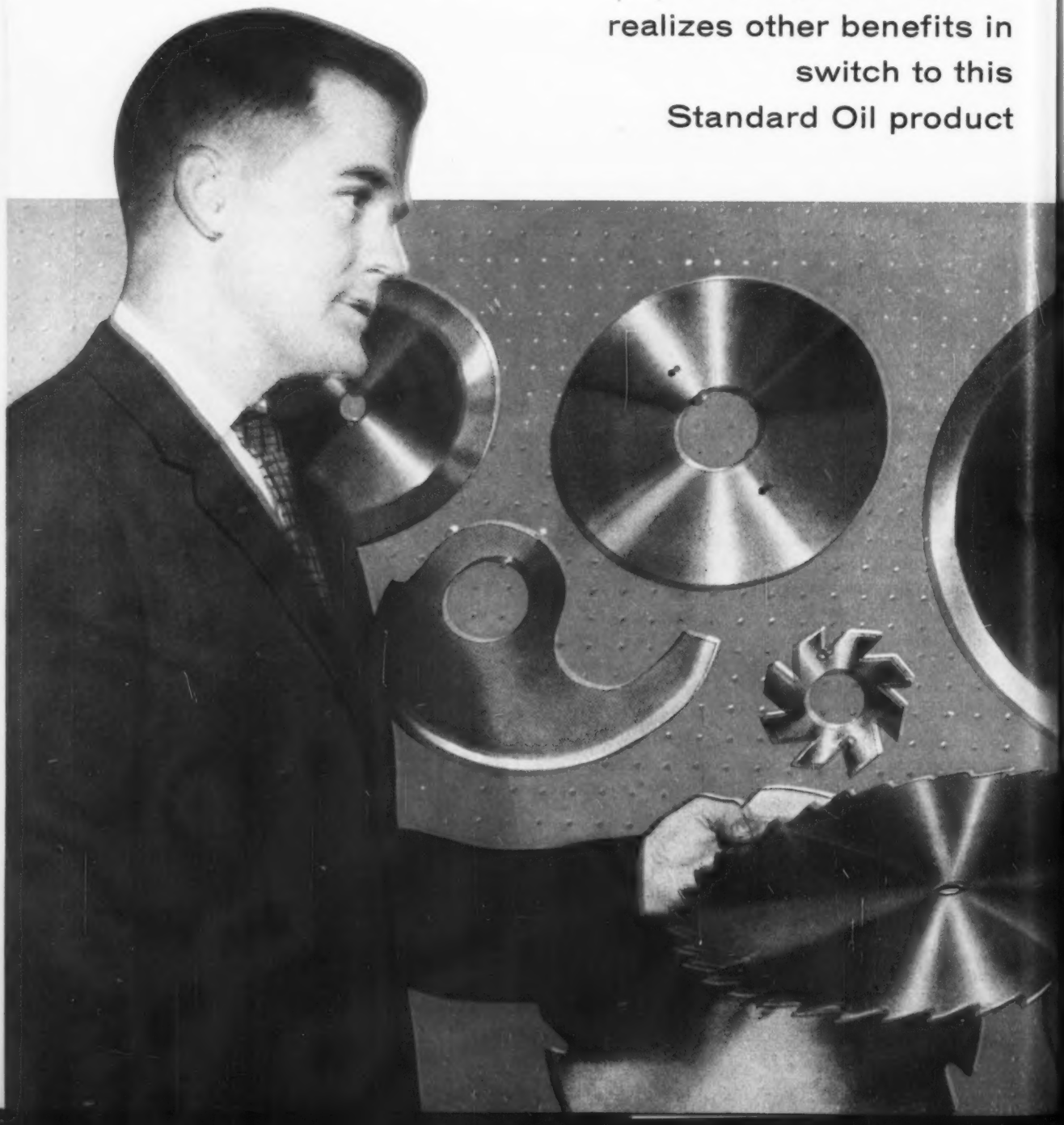
Standard's Transparent Coolant

ARGON Oil No. 4

Chicago Saws, Inc., realizes other benefits in switch to this Standard Oil product



Situation: It all started when a Standard Oil lubrication specialist recommended ARGON Oil No. 4, Standard's transparent coolant to Chicago Saws for use in their grinding operations. This manufacturer of rotary saw blades decided to give it a try. They knew the product was the result of more than three years' work in Standard's research laboratory, and that it had been extensively field tested.

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Using ARGON Oil No. 4, Chicago Saws gets better finish at savings of 40% over other coolants tried. Operator is using .004" cut on heat treated Rockwell 60 C steel.

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- All chemical. Does not support bacteria growth
- Unaffected by humidity
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Standard's Bob Stark and Chicago Saws' vice president Paul Bostrom discuss blades and coolants. Bob Stark is well qualified to work with manufacturers on the use of metalworking coolants. Bob has a chemistry degree from Illinois College plus three years' experience at Standard. He has completed the Standard Oil Sales Engineering School course.

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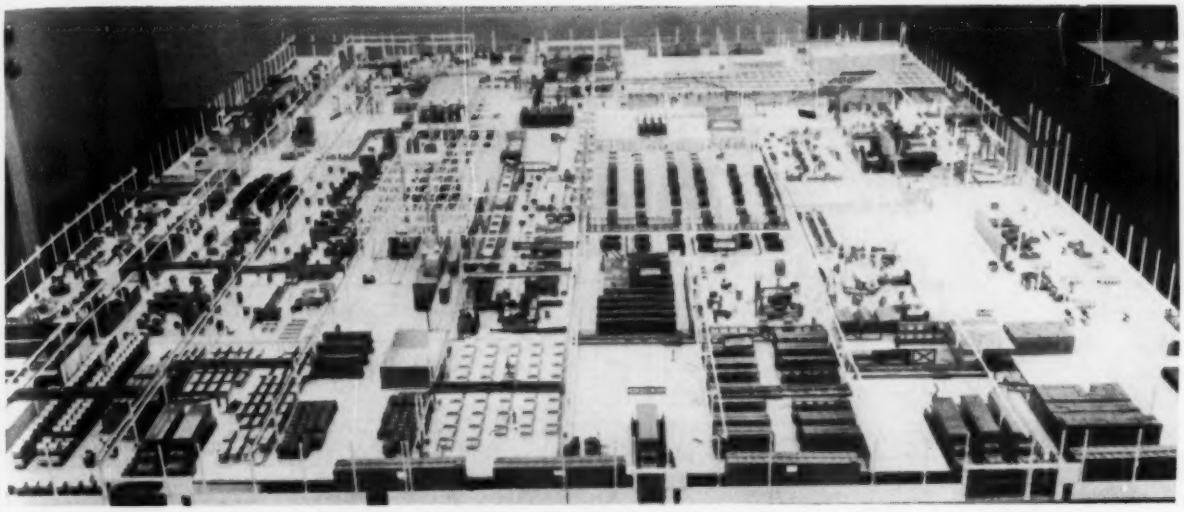


PLANNING AID: A 3-D model of the new transformer plant helped to coordinate planning and check progress.

Six-Point Plan for Better Material Handling

By **C. G. Nolan,** Supt. of Operations, **W. A. Zarbis,** Supvr. of Mfg. Engrg., **T. J. Murrin,** Supt. of Factory Planning—Westinghouse Distribution Transformer Plant, Athens, Ga.

Are you building a new plant or expanding an old one to make a variety of products? Want to get the very best in material handling efficiency? Here's how to go about it.

▪ An all-out drive to slash material handling costs was wisely integrated with every step of the planning for Westinghouse Electric Corp.'s new distribution transformer plant at Athens, Ga.

There was ample reason to hammer this particular cost factor down. Records from the company's other transformer plants showed that material handling accounted for well over half the labor cost in making these products.

Six Planning Goals — To insure that handling operations in the new plant would be at the lowest cost consistent with scheduled production quotas, the planning team set itself six primary objectives:

1. To make certain that any investment in material handling equipment above the necessary required minimum would bring a specified return.
2. To locate the new plant so incoming and outbound freight could be handled at optimum cost.
3. To eliminate double handling in shipments to customers by consolidating existing warehouse space into the new plant.
4. To use the force-flow handling technique wherever possible.
5. To reduce work in process and the number of parts banks and storage areas by using efficient scheduling and handling methods.
6. To develop the best overall plant layout from the standpoint of maximum production and minimum material handling.

How Few Handlings?—In dealing with the first objective, planners had to determine the minimum investment required for a workable material handling system. Their first step was to define the least number of handlings needed to produce a transformer.

Next they made up charts listing

the manufacturing and handling operations in sequence. They then drew up a basic material handling system to match these functions.

This "paper" system called for the simplest types of mechanized equipment, such as roller conveyors and fork trucks. It also called for some use of sheer manpower where mechanization didn't seem justified at the time.

Peg Minimum Investment—The next step was to analyze this basic system and evaluate it in terms of manpower, equipment investment, floor space, work-in-process inventory, and other significant cost factors. Thus the dollar total needed to buy and install this system gave the planning team its minimum-required-investment figure.

At this point the planners were ready to consider improving the basic system with more sophisticated material handling equipment. Here's where the policy rule specifying a certain return on added capital investment came in handy. It checked any tendency to go overboard on unnecessary refinements.

This meant that each item of suggested equipment over and above that called for in the basic system had to be analyzed in terms of net over-all savings versus the extra money it would cost. Where the required return seemed certain the improvement was accepted.

Save by Simplifying—But where the required return wasn't readily available, or where even higher returns seemed probable, the proposed equipment was simplified to reduce its cost.

Where equipment suppliers were already chosen, planners used the suppliers' costing formulas to evaluate estimates and check equipment prices before designs were made final. They occasionally spot checked the prices of similar equipment made by various suppliers.

Objective No. 2—the study of incoming and outbound freight costs—was primarily a problem in geography. There was one optimum geographic center for the various sources of supply to the new plant, and another for the area the plant would serve with finished goods.

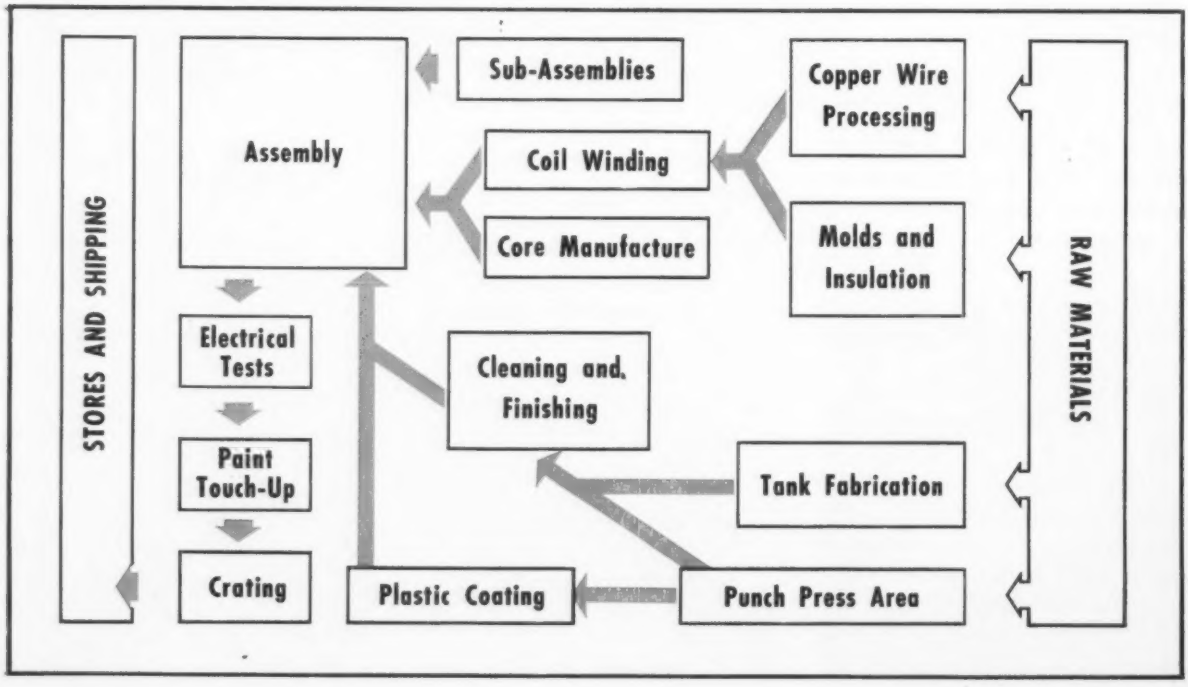
By plotting these two centers and by considering other pertinent facts, the planning team knew where to seek available plant sites. Surprisingly, it developed that the plant could be located anywhere within a certain 225-mile radius without a substantial increase in the over-all cost of incoming and outbound freight.

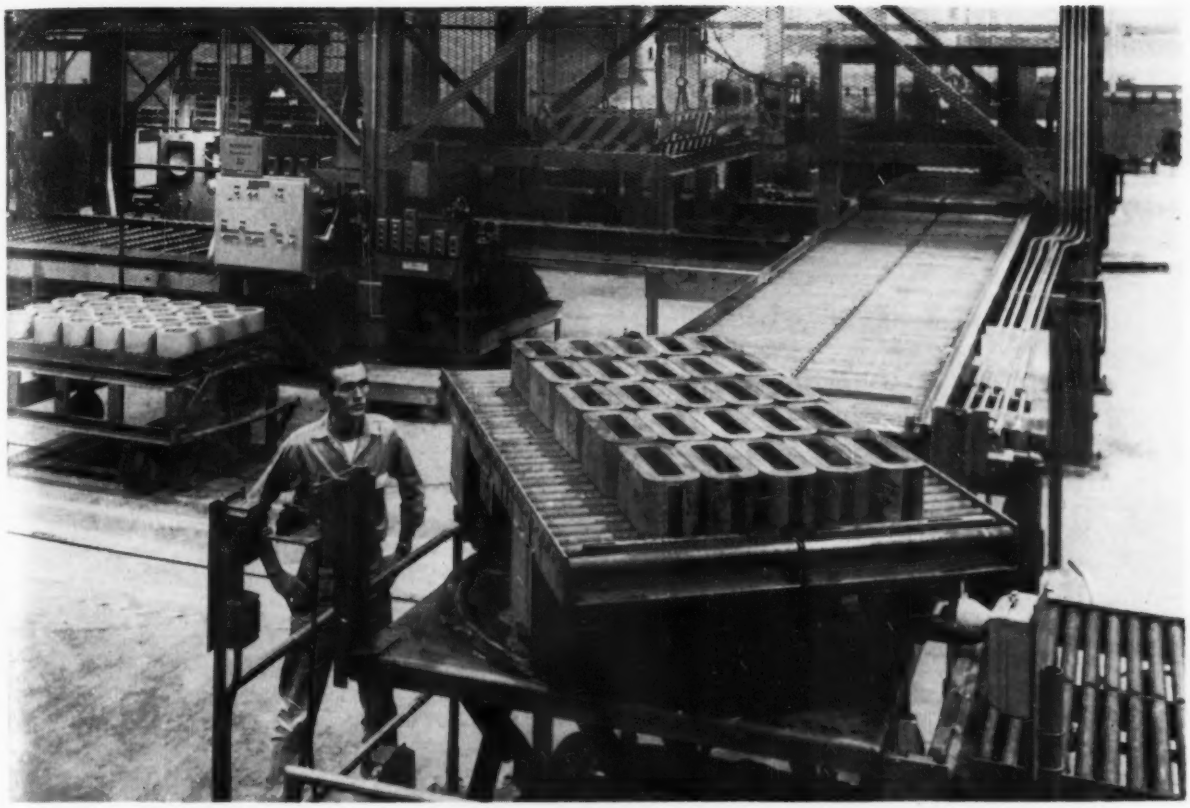
Cut Shipping Costs—Warehousing for quick customer service with minimum handling, was objective No. 3. Planners on this project found it might be possible to consolidate existing warehouse space in the area to be served, so the plant could distribute finished goods directly.

This would mean that (1) overall inventory of finished products could be kept at a lower level, (2) overnight delivery could still be made—but with two less handlings, (3) customers would be more closely linked to the plant.

In working toward its fourth objective, the planning team considered it almost mandatory to apply

Layout Designed for Straight Flow





POWER TURNTABLE: Delivers annealed cores to gravity conveyor (right) feeding test and storage area.

the forced-flow or continuous line production technique used in many mass-production industries. But since batch processing had always been used for transformer production, completely new concepts were needed.

New Ground Rule—As a start, planners adopted a basic ground rule which required that each manufacturing section be able to economically produce each basic transformer style each day. This focused thinking on quick-change, universal, continuous-type equipment.

Planning a continuous-flow system also forced progressive thinking about (1) paced assembly lines, (2) complete scheduling and control of materials and components, (3) methods of balancing machines with other machines and manufacturing sections with other sections.

Objective No. 5 was a cardinal point in the planning program: to have a minimum of handling operations, of work in process, and of banks and storage areas. To reach this goal, the team had to hurdle many problems peculiar to transformer production.

Products Pose Problems — For example, distribution transformers range in size from 5 to 250 KVA. There are numerous design variations within any KVA class, and each one is made up of hundreds of individual components. Variations in manufacturing processes for these different sizes further complicated the problem, as did the ground rule that each KVA size and style would be built on a daily basis.

Many of these problems were solved by eliminating variations in product design wherever possible. This greatly reduced the number of different parts that had to be handled and stored.

And as the designs of major transformer components became more standardized, so did manufacturing processes. Thus the same processes are now applied to dehydrating and curing all coils, to annealing all cores, to cleaning and painting all tanks, and to fitting and testing all finished transformers.

Versatile Handling Devices—In keeping with the standardization program for products and processes, manufacturing engineers and equipment vendors designed handling facilities which could be used for many different parts.

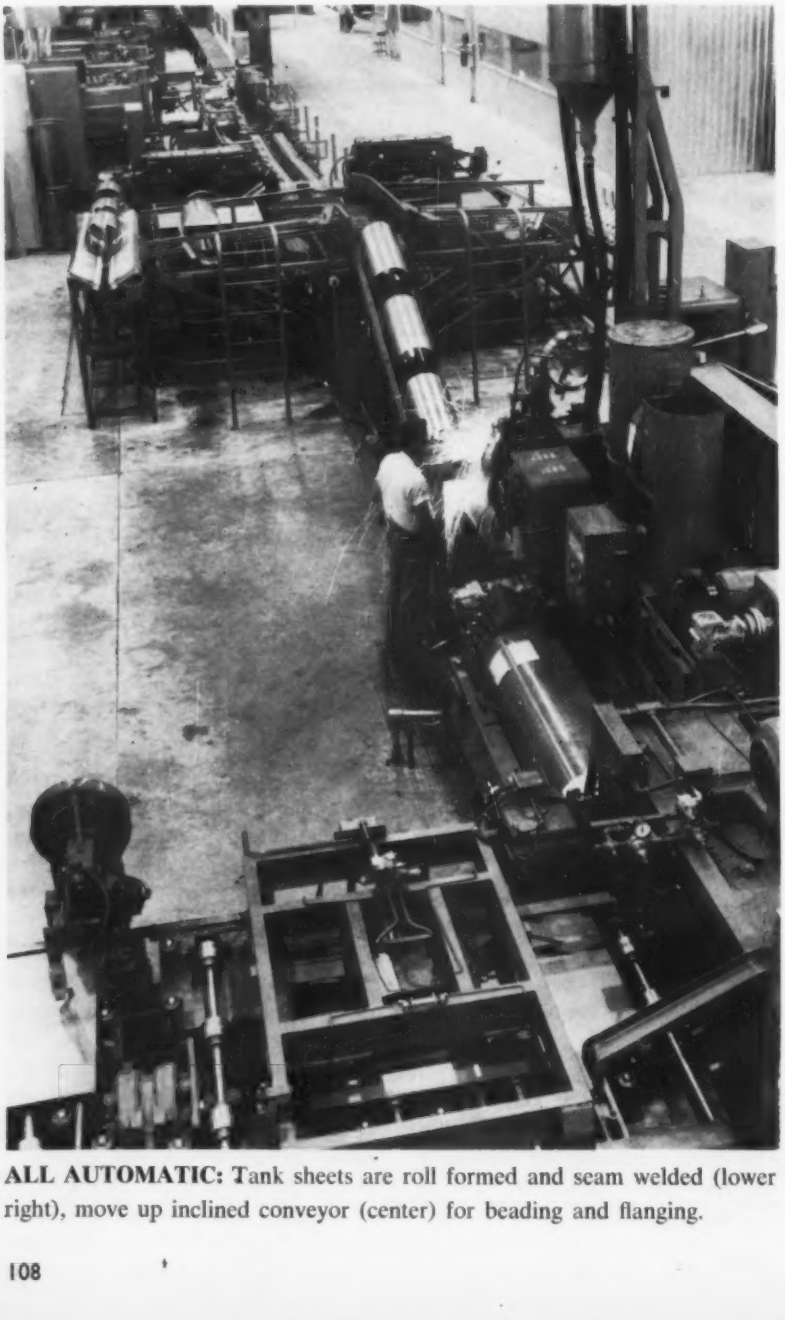
For example, a "Christmas Tree" carrier on the paint line conveyor carries many types of covers, grounding straps, cover beams, and other items. And the assembly line's power-and-free conveyor needs only two carrier designs to handle cores, coils, frames, tanks, and covers—both before and after assembly.

Another step toward objective

No. 5 was the installation of first in—first out storage racks to reduce both handling and work-in-process inventory of cores and coils. Toward the same end a dual-purpose monoveyor serves to both transport and store copper wire.

All-Automatic Areas—Wherever possible, completely automatic handling was applied as the best way to reduce the number of these operations and the labor involved. Examples of this occur in the transfer of cores from storage to the assembly line, and in handling transformers through automatic testing and other parts of the power-and-free assembly conveyor system.

The final objective—best overall layout of the plant from an efficient material handling standpoint—was reached by well-coordinated planning. Responsibility for material handling within a factory section was assigned to the supervisor of that section. Tie-ins between sections were the responsibilities of the plant layout group, with the respective section supervisors cooperating to smooth out the final details.



ALL AUTOMATIC: Tank sheets are roll formed and seam welded (lower right), move up inclined conveyor (center) for beading and flanging.

Well Organized Team — What about the makeup of the overall planning organization—the group that, with a limited knowledge of modern material handling, had to set its objectives and meet them—on time?

The full team was headed by a steering committee composed of top-level financial, technical and operating personnel. Responsibility for carrying out the overall objectives was assigned to the manager of factory planning.

Any major changes in policy and all progress on the project had to be reported to and approved by the steering committee on a monthly basis. Under the manager of factory planning, and reporting directly to him, the planning team included supervisors and engineers representing separate industrial engineering, tooling, plant layout and material handling groups.

Suppliers Can Help—Two experienced manufacturers of material handling equipment were also invited to work with the company's planning team, and to propose equipment that would help meet the objectives already outlined. Each supplier concentrated on a different part of the plant. Thus although the two did not compete directly in any given manufacturing area, each had an intense desire to do well in its own section.

By setting up definite objectives and cooperating enthusiastically to achieve them, the planning team fulfilled its purpose: to build a completely integrated plant in which the most modern material handling techniques are successfully applied. The project also provided valuable planning experience for company use in future expansion programs.

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DISSOLVES AFTER USE: Scratch-resistant coating washes away in warm water (left) leaving original finish (right).

Hard Coat Serves in Transit

A new quick-drying coat will help reduce handling costs on polished metal parts.

It cuts damage to materials before and during fabrication. And after serving, the temporary coat washes away in warm water rinse.

▪ Both in transit and during fabrication, polished parts need protection from scratching. A new material fills this need for a temporary protective coating for any polished surface.

Originally developed for the aircraft industry, it differs from other coatings in that it's easily and quickly removed. Being water soluble, the coating dissolves in only a simple warm water rinse.

Non-Reactive Coat — Produced by Industrial Metal Protectives, Inc., Dayton, the material is called Zincilate WST (water soluble temporary) -100. It's a non-reactive inorganic type of coating.

Use of an alkaline agent is never required for removal of the coating. This eliminates the possibility of damaging the part during removal of coating.

Dimensions or other markings are always visible through the coating. Also removal of the coating does not impair markings.

Can Use Color—Supplied in a natural form the material has a gold color. Water soluble dies can be used for identification.

Zincilate WST-100 coating resists petroleum solvents. While it will withstand mild forming and shaping, it's not intended to withstand severe angle forming.

Conventional equipment can be used for coating with any of the following methods: spray, dip, flow-coat, roller-coat, or pressure curtain. An ordinary solvent wipe is the only surface preparation needed.

Fast Drying—Requiring no baking, the coating air-dries to full hardness in about 30 minutes. Drying time drops to 5 minutes with proper warm air circulation. For production operations, infrared baking will set the coating in seconds.

One special use for the protective coat has turned up in the automotive field: It's being used as a stop-off coat for parts dipped in molten metal. Coated areas will not accept metal coating.

Special equipment is never needed for removal of coating. If material has been coated for an extended period (6 months or longer), steam cleaning, or the use of hot instead of warm water, may be advisable to expedite its removal.

How Air Speeds Chip Removal

A small blower develops hurricane force. Its purpose?—to blow screw-machine turnings right out of a plant and into a discharge hopper.

It's a boon to housekeeping and a big cut in manual handling.

▪ How many plant managers faced with housekeeping problems have wanted to open their plant at both ends and let the wind come in one side and blow everything out the other? Actually, it's an idea that can be put to work.

When Hoover Ball and Bearing Co., Ann Arbor, Mich., replaced its old plant with a modern facility, it decided early in its planning to do away with an old nemesis—disposal of turnings from its screw machines. The company installed a system to blow them out of the plant at hurricane velocity through 500 ft of pipe.

Called ChipVeyor, the system was designed and built by National Conveyors Co., Fairview, Bergen County, N. J. It provides automatic conveying, crushing, wringing and car loading of steel turnings.

Serves Screw Machines—At the start of the setup, a sub-floor chip conveyor services two lines of automatic screw machines to feed a wider cross-over conveyor. The cross-over line feeds turnings directly into a crusher which reduces the scrap to uniform sized chips.

Large pieces over 0.5-in. thickness, such as bar ends, are automatically rejected before falling into the crusher itself. It prevents damage to the crusher or clogging of the system and maintains uniformity of the scrap.

Chips are then lifted to an oily chip hopper. This hopper serves as a temporary storage bin for in-process chips prior to being fed into a centrifugal wringer. At regular intervals chips are fed to the wringer to remove any remaining oil that hasn't drained from the chips by this time.

Hurricane Velocity—At the end of the wringing cycle, chips drop into a discharge hopper, from which they are fed into the ChipVeyor duct. A blower unit produces air velocities of 90 mph in the duct.

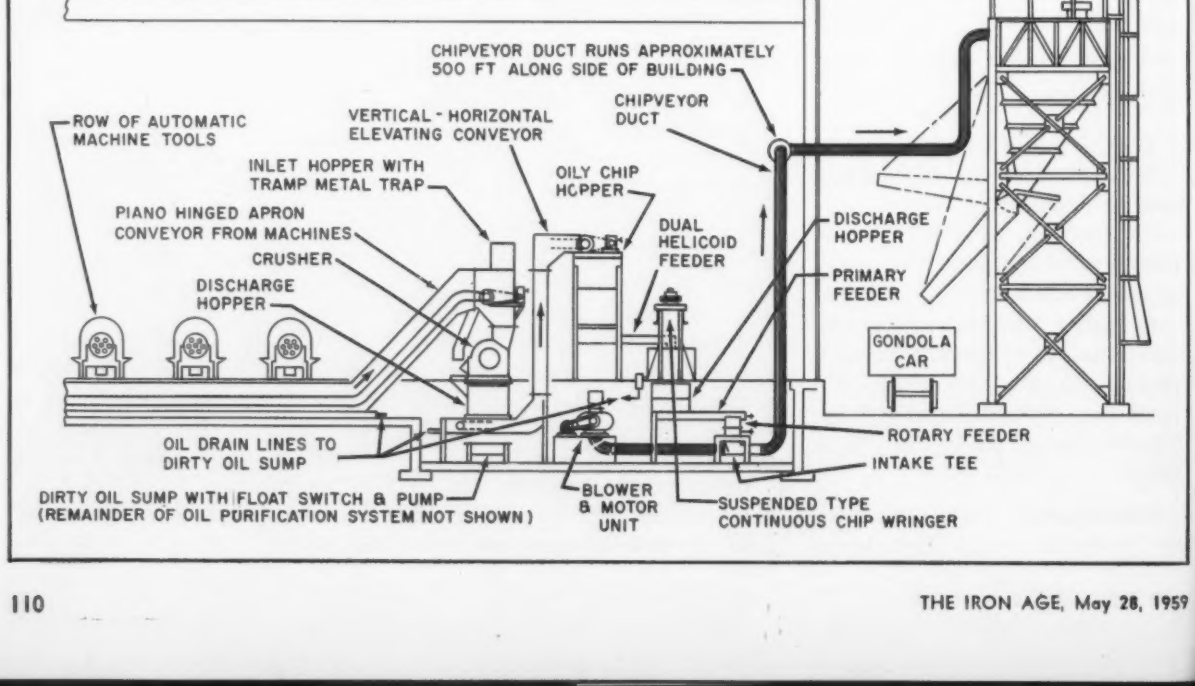
It's more than enough to speed the chips through the pipe, which rises nearly 25 ft from the hopper in the basement to the ceiling, then along the length of the building, across the plant yard and up another 25 ft to discharge in a storage bin next to a rail siding.

In all, the chips travel through some 500 ft of pipe, make some six 90° turns and are elevated about 50 ft. The duct is a 5-in. ID steel tube. Elbows at the turns are an alloy steel to resist erosion.

Reclaim Oil—An oil reclamation process operates in connection with the chip handling setup. Oil dripping from chips flows along a trough to a sump.

It's then pumped to a central collecting area along with oil from the centrifugal extractor. Preliminary

Combined Setup Processes Chips, Recovers Oil


1500 CU FT CHIP STORAGE BIN
CHIPVEYOR DUCT RUNS APPROXIMATELY 500 FT ALONG SIDE OF BUILDING
CHIPVEYOR DUCT
ROW OF AUTOMATIC MACHINE TOOLS
VERTICAL - HORIZONTAL ELEVATING CONVEYOR
INLET HOPPER WITH TRAMP METAL TRAP
OILY CHIP HOPPER
PIANO HINGED APRON CONVEYOR FROM MACHINES
DUAL HELICOID FEEDER
DISCHARGE HOPPER
CRUSHER
DISCHARGE HOPPER
PRIMARY FEEDER
GONDOLA CAR
ROTARY FEEDER
OIL DRAIN LINES TO DIRTY OIL SUMP
INTAKE TEE
DIRTY OIL SUMP WITH FLOAT SWITCH & PUMP (REMAINDER OF OIL PURIFICATION SYSTEM NOT SHOWN)
BLOWER & MOTOR UNIT
SUSPENDED TYPE CONTINUOUS CHIP WRINGER

screening removes large particles of chips and dirt at the dirty oil sump.

A sterilizing unit then heats the oil to kill bacteria. Heavier particles settle to the cone of the tank which is equipped with clean-out facilities. The oil then runs through a centrifuge to complete the cleaning process and remove any water.

Store for Reuse — Oil drained from the centrifuge passes to a surge tank where a pump delivers it to an elevated storage tank for gravity return to the screw machine line. Oil reclamation is about 85 pct.

Advantages of the combined system are many. The setup handles up to 2 tons of chips per hour, even though the company is now processing only about 25 tons a week. Therefore, the company can expand the number of screw machine lines feeding into the system without adding more processing equipment.

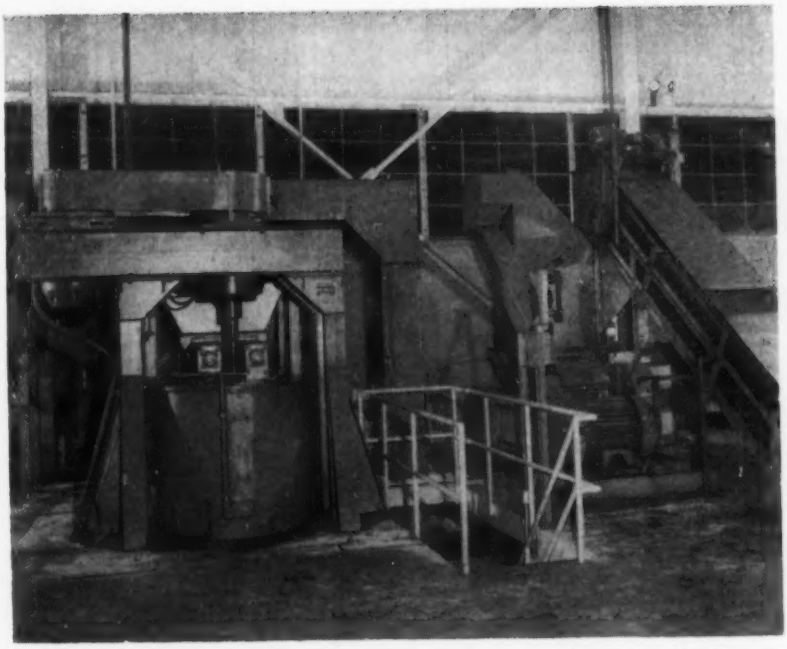
Installation of units above and below floor level is more compact than the manual scrap handling method used in the old plant. At the same time, there are no oil trails through the plant caused by oil dripping from collection boxes as they are moved from machines to scrap disposal area.

Safety Aspect—As well as simplifying housekeeping, the setup eliminates potential safety hazards due to slippery floors. In addition, the number of manual operations required for handling scrap is drastically reduced.

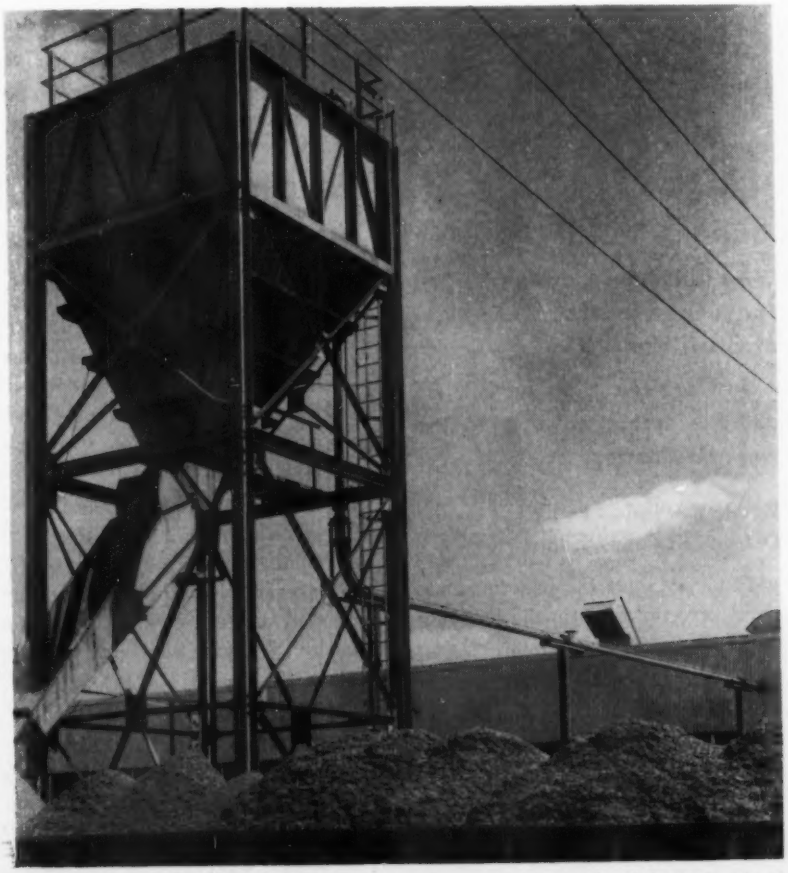
As a bonus, the value of the scrap is greatly increased. Ordinary machine shop turnings are turned into a quality, dry short turning.

Chips from the storage bin can be loaded directly into railroad cars. It produces an additional premium in car-load prices instead of the lower rate for trucking turnings away from the plant.

While the installation at Hoover's plant is typical, National Conveyor has installed similar units with greater capacity. Its largest system to date is rated at 10 tons per hour.



COMPACT OPERATION: Oily chips enter processing through elevator on right. Setup includes oil reclamation equipment. At end of processing, dried chips get blown up through vertical pipe (top left).



QUALITY DISCHARGE: Processed chips speed through 500-ft length of pipe to discharge in outside storage hopper at rail siding.

EFFICIENT HANDLING: Parts-laden trucks move silently around pre-determined routes under electronic control.

Electronic Setup Guides Parts Through Warehouse Routes

An in-the-floor towing system features electronically-actuated switches.

Just set two dials on a truck and the system tows it to the right destination.

By H. R. Neal—
Detroit Regional Editor

▪ Efficient material handling and inventory control form the basis for modern warehouse operation. An example of both is found in Chevrolet's new National Parts Distribution Center at Otterburn, Mich.

Speeding the flow of material in and out of the center is a fleet of more than 700 electronically-guided trucks operating along an in-the-floor conveyor. The system, called "Towveyor," was manufactured and installed by Jervis B. Webb Co., Detroit.

Automatic Routing — The setup automatically tows four-wheel trucks along the aisles, turning and stopping according to pre-determined signals.

There are nearly 9250 ft of conveyor tracks in the plant forming four main loops, 13 spur lines, eight transfer lines and a weighing station. Plans are to add 200 more trucks to boost capacity of the system.

Trucks are loaded with incoming parts at rail or truck receiving docks for transfer to the center's paint processing operation, packaging department or storage area. Other trucks are loaded at the storage area for transfer of outgoing parts to shipping points around the world.

Dials Set Route—In each case, when a truck is loaded, two electronic dials on the truck are set for the particular in-plant destination. It's the automatic switching feature that sets the system apart from the conventional Towveyor system and others like it.

One dial with four positions for the switch determines which of the four loops the truck will go to. The other dial, with eight positions, selects the station or spur on the loop that the truck enters.

To set the truck on its way, a tow pin at the front of the truck is dropped through a slot in the conveyor rail. A lug on the conveyor chain engages a connecting pin and starts the truck moving towards its destination. The lugs are placed at 15-ft intervals.

HIGH-SPEED INVENTORY: Electronic setup processes parts information at 15,000 characters per second.

Speed Adjusts — Each line has adjustable speed drives. Currently, three loops are operated at 100 fpm, considered the maximum, while the other line runs at 80 fpm. Depending on the load and use made of the system, speeds around 60 fpm are advisable from the standpoint of the reducing maintenance.

Automatic switching is accomplished through a system of limit switches and electronic controls. Transmitters with different frequencies are located at each switching point. Each transmitter has a detector coil.

As a truck passes over a transmitter, the control mechanism located on the truck absorbs a quantity of energy as does the coil. If the drop in energy at the detector coil is large enough, determined by the position of the dials on the truck, it causes the track switch to operate, directing the truck to the new track.

Automatic Bypass — If a spur track is filled to capacity, the truck automatically bypasses it and makes another trip around the loop. Because of the size of the plant, a circuit of each loop takes about 20 minutes.

If a truck should bump into another vehicle or other obstacle, such as in loading areas where empty trucks are waiting or on spur tracks, a pressure sensitive bumper manually disengages the connecting pin from the towing lug. When the pressure is removed, the pin drops back into place to await the next lug.

All of the loops operate through a master control panel. In case trouble develops in the system, the master panel indicates which of the four loops has the trouble and at which end of the loop it's located. At each end of each loop is a "zone central panel." This indicates specifically where the trouble is located.

Nerve Center — With nearly 23 acres under one roof, the Distribution Center is the nerve center for a parts business which involves 41 warehouses in the United States, 19 General Motors plants overseas and 130 independent foreign distributors of GM products.

Electronic data machines capable of processing information about parts and accessories inventories at speeds up to 15,000 characters per second keep track of the inventory and distribution of more than 57,000 different Chevrolet, Oldsmobile, Pontiac and Vauxhall parts for car and truck models dating as far back as 1935.

In its first year of operation the center processed more than 750,000 parts orders from dealers — enough to form a pile of paper 30 stories high. Tabulating cards required to process these orders would fill 20 railroad boxcars.

Setup Proves Worth—More than 7 million parts can be processed and painted in a year—enough to require a conveyor 900 miles long to hold all of them at one time. The center ships more than 250 million lb of freight a year by rail and truck.

More than 10,000 railroad boxcars a year are loaded or unloaded —enough for a 100-mile long train —from a 16-car inside siding. Shipments are received from 15 Chevrolet, Oldsmobile and Pontiac

MONITORS SYSTEM: In case trouble develops, master control panel indicates which of four loops has the trouble and at which end of the loop.

WIDESPREAD SHIPMENT: Distribution Center serves 19 GM plants overseas as well as 130 independent foreign distributors of GM products.

plants, 18 other GM division and about 700 independent suppliers.

The Towveyor installation in the Distribution Center is the largest of seven such systems now in use. Similar conveyor systems have installed at Chevrolet's major supply depots in St. Louis and Atlanta and the Detroit Diesel Div. of General Motors.

Other installations are in warehouse and distribution centers of Johnson & Johnson Co., New Brunswick, N. J., Spartan Co., Grand Rapids, and Macmillian Publishing Co., Chicago.

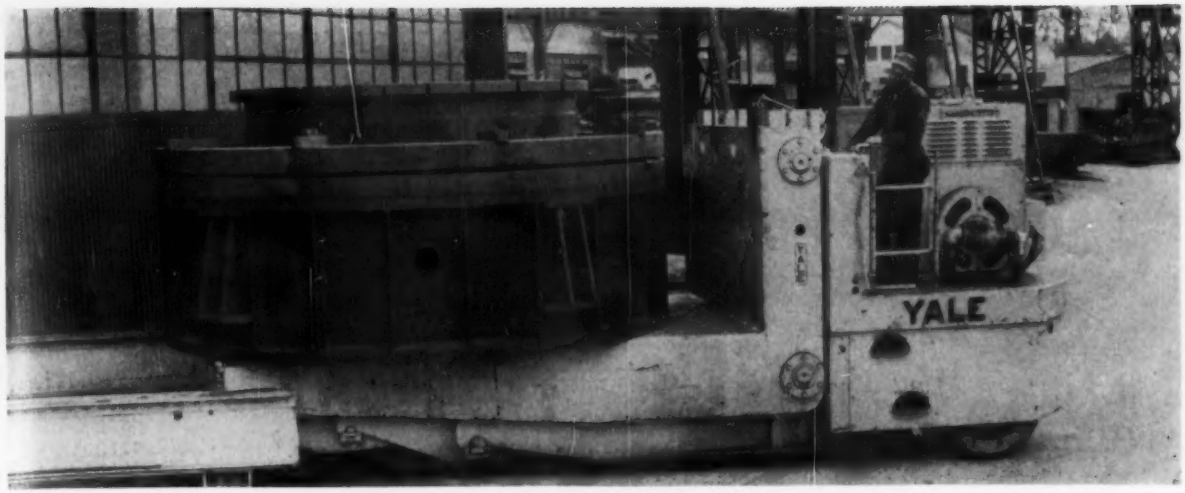
Works in Production — The Webb Co. says the Towveyor system is designed primarily for use in warehouses. But it can easily be adapted for use as production lines where a variety of units are assembled but stored in different locations.

The only practical limit to the size of the trucks used is the wheels or tires. The Detroit Diesel installation, for example, handles giant engines weighing in excess of 5000 lb.

Johnson & Johnson uses its conveyor system not only to deliver raw and semi-finished materials from one operation or another, or to carry manufactured finished goods to the shipping center, but also to carry waste, especially burnable material, to an incinerator in the plant.

Versatile System—Another GM division is considering a Towveyor installation for a parts distribution center, with the possibility of incorporating the conveyor into a production line. A large forge shop is also considering a system. And to show its versatility, a Towveyor will be installed in a large frozen foods warehouse where it will operate at a continuous temperature of –25°F.

While installation of the truck-conveyor system "would not be impossible in existing facilities," according to Webb engineers, it's more practical and economical to incorporate it in new buildings.



EASY STORAGE: Lift truck moves die set onto I-beam storage stands. There's no need for crane equipment.

Lift Truck Handles Huge Dies

You can't help but save on handling time when dies have a through route from storage to press.

That's what a special lift truck does in boosting the flexibility of a giant die press.

▪ A new 4000-ton capacity die press is the key to a company's program of diversification. The unit forms larger and more complex metal sections than made in the company's usual line of railroad tank cars and pressure vessels.

The stress on diversity dictates that the press be made as flexible as possible with minimum time for die changing. To cope with vital die handling, the company, American Car and Foundry Div., ACF Industries, Inc., Milton, Pa., requested Yale Materials Handling Div., The Yale & Towne Mfg. Co., Philadelphia, to develop a lift truck for the job.

Cuts Handling Time—Yale designed a unit to handle up to 200,000 lb. The single handling unit cuts die handling time by 50 pct, while using only the five-man press crew for the job.

A 142,000-lb die is the largest presently in use at the Milton plant. For making tanker-car flued center sections, it can now be changed in 3 to 4 hours instead of the previous 6 or 7 hours. For smaller dies, changes reflect the same ratio of time saving.

Die changes average two to three in a three-day period. On occasion as many as three die changes have been made in a two-shift day. ACF anticipates an increase in change-over rate as operations diversify.

Key in Capacity—Secret of the efficiency of die handling is that the truck's capacity and 104-sq-ft platform permit handling built-up die assemblies as a single unit. Assembled dies, ready for immediate insertion into the press, are kept in a storage area close to the press room.

It's located within 100 yd of the entrance of the press room. Individual dies rest in I-beam stands made so that the platform of the truck can move under the massive units to pick them up without the need for crane equipment.

In the case of rectangular dies, which are narrower than the stand members, I-beam cross members span the stanchions and are picked up by the truck along with the die.

For Close Handling — Hydraulic power steering through eight sets of castor wheels under the truck platform make close maneuvering easy. For visibility around the cumbersome loads, the operator can choose stations on either side of the truck.

There are two methods of installing dies from the platform. In the first, the upper mating portion of the die is bolted directly into proper position while the truck is supporting the whole unit.

On securing the bottom portion to the upper platen with slings, the truck platform is lowered. Then the truck is backed off before the die section is lowered to its bed position.

Choice in Method—The second method is to secure the whole die immediately with slings and back off the truck before final installation starts. Removal of the die from the press and its replacement in storage is merely a matter of reversing procedure.

Now, with the new lift-truck handling system, only the press crew is needed for the job. All the auxiliary personnel used in the old handling operation are released for productive work in other areas of the plant.

EASY HANDLING: Pallets hold 36 cartons. Automatic truck needs no driver in transit from packaging area.

Cartons Ease Packaging Problem In Handling Bulk Screws

Cartons get the nod over drums because of easier storage and handling.

Customers get the screws in better shape too.

▪ For both supplier and user, the packaging of bulk screws counts heavily in materials handling efficiency. One company, Southern Screw Co., Statesville, N. C., faced this problem in replacing heavy round metal containers.

Customers had increasingly objected to the difficulties in stacking over two high and to the wasting of space with the round shape. Southern experienced the same problems in its own warehousing. It led to the search for a more suitable method of packaging.

Cartons Store Flat—The answer was found in a heavy-duty corrugated board box developed in cooperation with Hinde & Dauche, Div. of West Virginia Pulp & Paper Co., Sandusky, O. It's bought and stored flat, unassembled, then put together only as production requirements demand.

Due to its square shape, it affords more complete use of warehouse space. By standardizing on a smaller unit pack, it can be handled manually, by mechanical means, or stacked on pallets for handling with hand trucks. The box is resistant to oils, climatic conditions and is able to stand up under rough handling.

A further advantage is that the cartons fit in with the standards set by the 1955-56 packaging conferences held by representatives of the automotive industry and fastener manufacturers. The recommended system was expanded to cover Southern's full line of threaded fasteners.

Fits Standard—The standard is a 9 x 9 x 6½-in. telescope cardboard container of 275-lb-test corrugated paperboard. When filled, the average weight is about 40 lb, which can be easily handled by one man.

For movement by hand trucks or powered mechanical means, 36

containers are double strapped on two-way entry disposable pallets. Experience proves that the strength of the carton plus ease of handling gets the screws to customers in better shape. It eliminates the unavoidable battering that other types of containers get.

Labels Spot Contents—To complement the bulk packaging system, Southern's "EZ to C" label system, originally developed for gross packaging of screws for the hardware trade, adapts well to the new packaging system. Two labels on each carton, one on top and one on the side, allow stocking with visible identification whether the box is standing on the floor or on a shelf.

The copyrighted label clearly shows the contents of the package. Color of the paper on which the label is printed identifies the basic material: steel, brass, silicon bronze, aluminum or stainless steel.

Border design is different for wood screws, tapping screws, machine screws, machine screw nuts, carriage bolts and hanger bolts. Head style (flat, round, oval, pan, truss, fillister, hex) and type drive (slotted or Phillips) are illustrated in large silhouette.

Cuts Shipping Errors—Color of ink used on silhouette and printing shows type of finish—plain, blued, cadmium plated, zinc plated, chrome plated or hot galvanized. Experience in the company's own warehouse shows faster handling and one-fifth the shipping errors formerly made.

In actual packing, the screws are transferred from steel tote pans to the cardboard containers according to predetermined count by weight.

Four-wheeled carts each handle one pallet load in transit from the packaging area to warehouse-shipping area. A Barrett electric tractor, made by Barrett-Cravens Co., Northbrook, Ill., pulls five or more of the carts over this route.

It's a system that requires no manpower in transit since the tractor's automatic sensing unit follows a white line painted on the floor. For single pallets, a hand-operated lift truck can handle the load.

NEAT, COMPACT: Standard cartons store in minimum floor space. Easy stacking allows high vertical storage. Label system cuts shipping errors.

STANDS THE WEIGHT: Each carton on bottom of tall stacks has about 600 lb resting on it. Pallet weights run to a maximum of 1800 lb.

ONE-STEP LOADING: Fork truck transfers unit directly from loading dock. Two-point tie-down is simple.

"Containerization" for Small Lots Eliminates In-Between Handling

By **C. W. Bent**—Industrial Truck Div., Clark Equipment Co., Battle Creek, Mich.

Just as palletization speeds handling in your own plant, a new system of standard containers can solve many inter-plant shipping problems.

The units feature quick tie-down for highway trailer, flat car, or shipboard deck.

▪ A whole new system of materials handling is evolving around a concept called "containerization." It's still pretty much in the experimental stage, but enough has been done to indicate that it has big potential for the metalworking industry.

Containerization is the principle of using a physical envelope—a steel or aluminum container—to carry a large number of packages or units for shipment between two or more points. The theory behind it is simple: one big package is cheaper and easier to handle than a number of smaller units shipped individually.

At a glance, containerization appears to be another form of "piggybacking"—the practice of hauling truck trailers on railroad cars. But there are big differences. Piggybacking is a fast, cheap method of moving truck freight over long distances. It's only a method of transportation.

Concept Goes Further — Containerization is more than that. It integrates transportation with packaging, materials handling and distribution.

For metalworking companies—particularly those which ship castings, forgings or end products in small lots—these are the advantages of containerization. It lowers cost of freight, handling and in-transit insurance; reduces product damage or loss, and minimizes traffic and warehousing problems.

FAST TURNAROUND: Clark cuts three handling steps and increases material flow in inter-plant run.

For example, let's say Smith Metal Works produces grinders, which are packaged in paperboard boxes and shipped to several hundred distributors around the country. Because of wide dispersion of its dealers, Smith must usually ship in less-than-carload or less-than-truckload quantities, and thus pays a premium freight rate.

Handling Adds to Cost — Since there are several transfer points along the distribution route, individual boxes must be handled several times from factory to distributor. Each handling adds to freight costs and increases the possibility of damage and pilferage.

With containerization, Smith would load all grinders destined for one city, or even one area, into one container. Three containers, sealed and locked, would be placed on a railway flat car or two on a flatbed highway trailer.

For such a shipment, carload or truckload rates would apply, rather than the higher LCL or LTL rates. At freight transfer points along the route, handling is restricted to one container rather than numerous smaller units.

Door-to-Door Safety — When it reaches the destination city, Smith's container is placed on a small city truck which would deliver grinders directly to dealers. Thus the only manual handling of individual grinders would be during loading at the factory and unloading at the distributor's door.

Aside from potential savings in freight and handling costs, containerization can help solve warehousing problems. If Smith Metal Works is short of storage space, the containers themselves can be used as temporary warehouses. If all the units are destined for one customer, the container can be left at the customer's plant to serve as temporary storage.

Inter-plant Use — This phase of containerization has worked out very well for Clark Equipment Co., originators of the "Mobilvan" system of containers. Clark uses the system for inter-plant shipment of metal components between plants in Buchanan and Battle Creek, Mich.

Metal stampings produced in Buchanan are loaded into Mobilvan containers which are transported on highway trailers to Battle Creek. There, containers are left on the ground as warehouses until emptied.

The system eliminates three intermediate handling steps and speeds up the flow of materials between plants. And it eliminates the lost time of truck drivers waiting for their trailers to be loaded or unloaded.

Problems to Solve—From these examples, it's apparent that containerization has promise. But it also has some big problems to be worked out before it can be fully exploited.

The biggest single problem is determining standards for containers. Right now, they come in too many different sizes and types of tie-down devices to permit effective inter-

change among all types of carriers.

It's a knotty problem because there are a good many manufacturers and carriers involved, and all have their own theories. But they agree that standardization is a must.

Agreement in Sight—It appears to be only a matter of time before an agreement is worked out. The new Container Standardization Committee of the American Standards Assn. is doing the major share of work on the problem.

Setting freight rates for goods shipped in containers is another problem. But it's beginning to be solved.

Federal and state authorities and the carriers themselves are now more familiar with containerization through their experience with piggybacking. It makes it easier to agree on equitable tariffs.

Rates to Drop—Although many rates now quoted are temporary, some long haul rates have been firmly established, such as the $924 charge for shipping one flat car loaded with containers from Chicago to the West Coast. Advocates of containerization say that all rates now quoted for shipping containers are temporary, since they expect rates will drop considerably when the method becomes widespread.

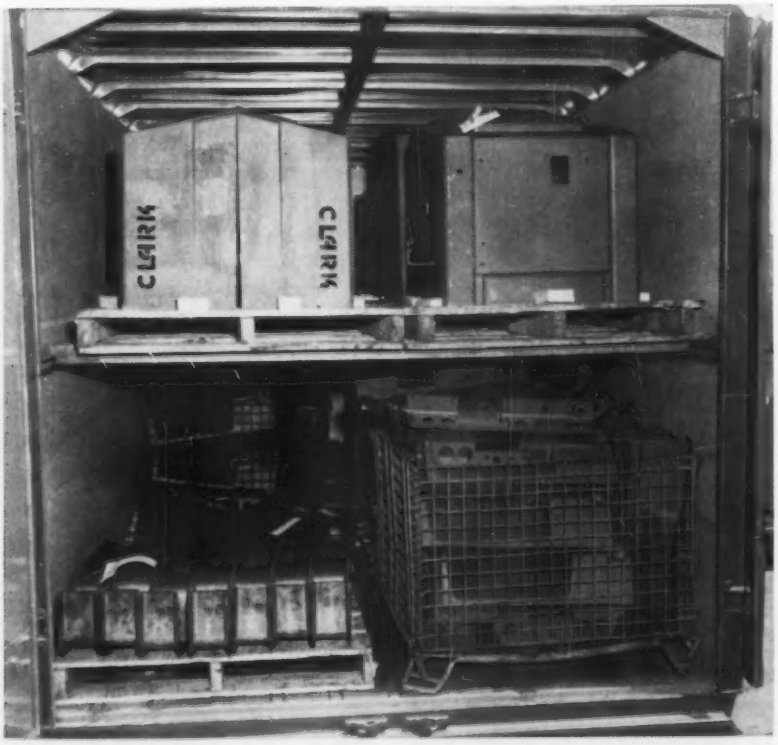
While these two problems are still on the agenda, at least one other major bottleneck to containerization has been broken. Equipment big enough to move containers quickly and cheaply is now available in both variety and quantity.

Shippers now using containerization have found that large capacity fork trucks are usually the most effective means of moving containers around loading docks and storage areas. Railroads and truckers use fork trucks and straddle carriers to transfer containers between flat cars and trailers. Port facilities use crane installations to transfer containers to ships.

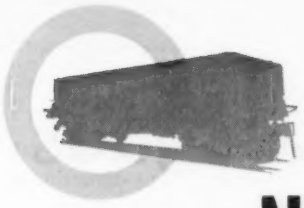
Designed for Job—Clark Equipment Co. is about to introduce a new type of straddle carrier which will stack containers two high. Such handling equipment is usually available through leasing or rental to make it easier for the small shipper.

Some metalworking firms can try containerization right now. At least one freight carrier (ABC Freight Forwarding Co., New York) is offering container service for shipping general commodities between New York, Chicago and several other cities.

EXTRA BONUS: At Clark's Battle Creek plant containers serve as temporary warehouses. They protect from weather damage or other harm.



HOLDS VARIETY: Metal stampings stay put until container reaches destination. Container also serves as storage until parts are needed.



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Rusted-Metal Primer

Designed as a first coat for metal, a new primer specifically formulated for use over rusted and damp surfaces is described. It penetrates rust to bond tightly with the underlying metal, and fills crevices for a uniform surface. Where dampness is present, it displaces moisture. Flexible from –40° to 240°F, it withstands salt spray and hard knocks. (The Sherwin-Williams Co.)

For free copy circle No. 2 on postcard, p. 129

Gold Plating

A data file outlines uses and methods of gold plating, and industrial applications of gold. (Engelhard Industries, Inc.)

For free copy circle No. 3 on postcard, p. 129

Closed-Circuit TV

Closed-circuit television applications in the steelmaking industry are featured in a four-page bulletin. Thirty specific applications ranging from ore-mining through product-finishing operations are shown, and capsule case histories of five major heavy-industry systems are included. (Diamond Power Specialty Corp., Electronics Div.)

For free copy circle No. 4 on postcard, p. 129

Wire Specifications

Complete reference for coarse round, standard, and special shaped wire; in many finishes, analyses, and tempers; in low and medium low-carbon steels; is contained in a manufacturers' wire manual. Steel wire chemical analysis and a complete steel wire gage are included. (Continental Steel Corp.)

For free copy circle No. 5 on postcard, p. 129

Drive Equipment

An illustrated bulletin describes a complete line of adjustable-speed drive equipment for industrial applications. Eddy-current couplings, drives, brakes, and dynamometers, as well as magnetic friction clutches

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and brakes, are discussed. (Dynamatic Div., Eaton Manufacturing Co.)

For free copy circle No. 6 on postcard, p. 129

Fastener-Fit Checklist

A handy, solve-it-yourself checklist of common fastener problems and solutions is offered. Listed are common fit problems, possible causes, and gaging devices needed to detect them (only common gages are specified). (Standard Pressed Steel Co.)

For free copy circle No. 7 on postcard, p. 129

Solid-Carbide Drills

A bulletin presents fully illustrated information on a solid-carbide drill designed to work hardened steel at minimum friction, and also suitable for drilling other hard materials. Tips are included on speeds, feeds, lubricants, and chucking of this type of drill for high production and long tool life. (M. A. Ford Mfg. Co.)

For free copy circle No. 8 on postcard, p. 129

Digital Voltmeter

An AC/DC digital voltmeter is described in a data sheet. Accurate to 0.01 pct ±1 digit DC, and 0.2 pct ± 1 digit AC, models of this meter feature a fifth digit for DC overranging. The readout unit may be remotely mounted for convenient observation. (Kin Tel, A Div. of Cohu Electronics, Inc.)

For free copy circle No. 9 on postcard, p. 129

Dust Collector

A simple, rugged, low-cost dust collector designed for collecting moderate loadings of dry, granular particles is described in a 20-page product bulletin. Exhauster, separator, and hopper are packaged in one compact unit. Construction and performance characteristics are presented in detail. (American Air Filter Co., Inc.)

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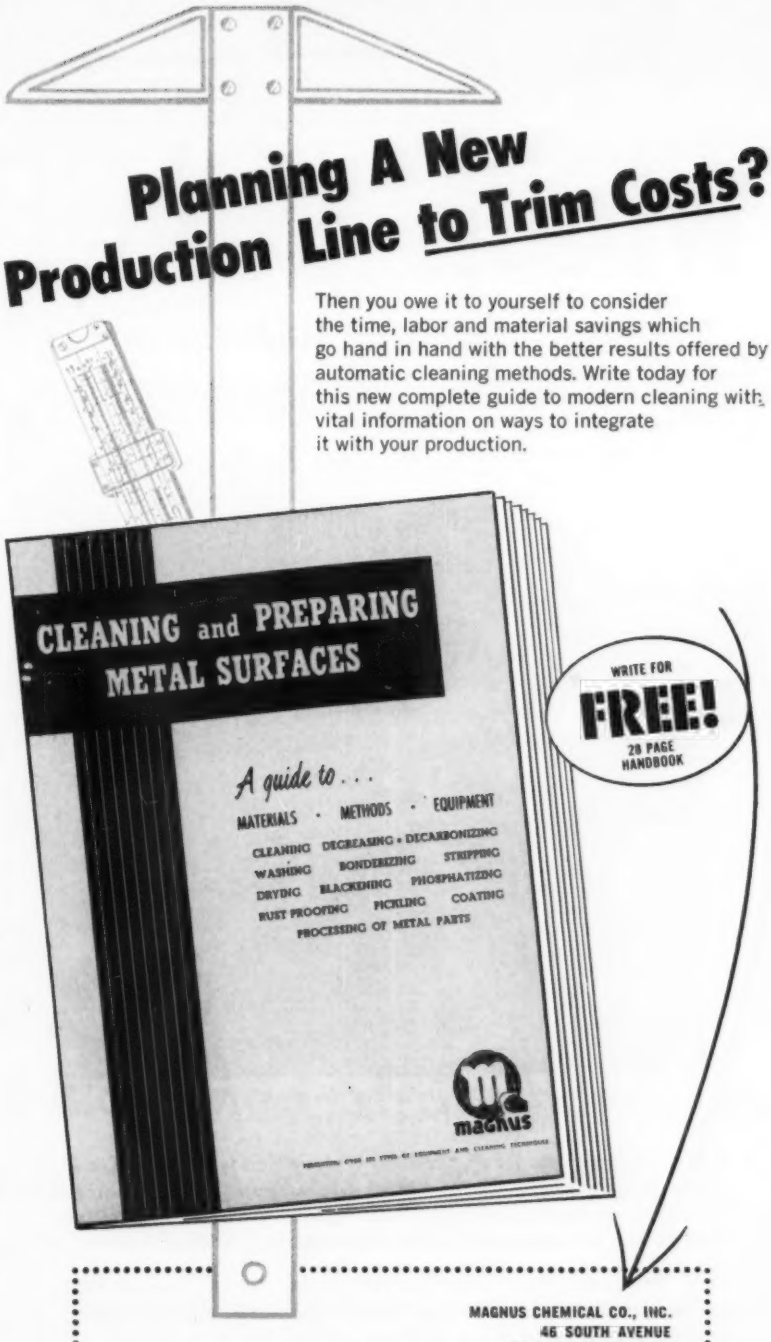
Remote Weighing

The author company's accomplishments in the field of automatic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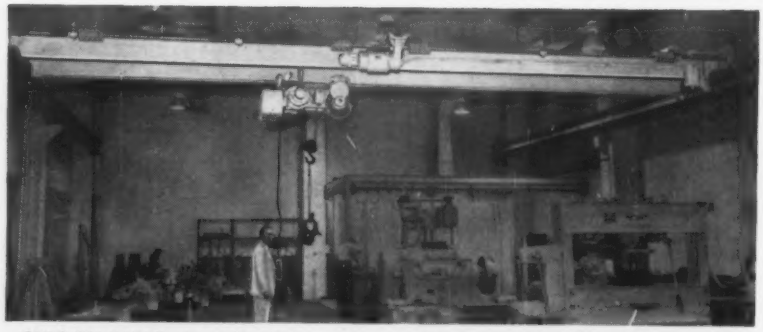

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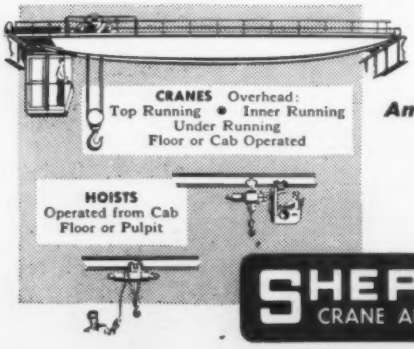

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transmitting and processing of weight data are described in a brochure. Systems described use electronic or electromechanical weight signals from the scale used, and standard tabulating and punch recording equipment. (Toledo Scale Corp.)

For free copy circle No. 11 on postcard, p. 129

Rustless Condulets

"Condulets for Corrosive Locations" is a 16-page bulletin outlining the corrosion-resistant properties of a variety of metals and finishes used in a line of condulets, with charts showing applications. Plastic-coated condulets for hazardous locations are also shown. (Crouse-Hinds Co.)

For free copy circle No. 12 on postcard, p. 129

Metal Finishing

A data file covers a line of process-engineered equipment and systems for metal finishing. In addition, specialized finishing service, including engineering, installation, and service for complete finishing systems, is offered on a package-plan basis. (Allied Research Products, Inc.)

For free copy circle No. 13 on postcard, p. 129

Corrosion Preventive

Spray-coating with corrosion-resistant plastics is facilitated with a portable thermoplastic spray unit capable of handling a wide range of plastics. Procedural instructions and specifications and operating data are included. (American Agile Corp.)

For free copy circle No. 14 on postcard, p. 129

Vibrating Screens

Vibrating screens of 12 different types in 212 sizes are described in a 48-page book. Information on screen cloths and accessories is included. Tables of materials and selection data complete the presentation. (Link-Belt Co.)

For free copy circle No. 15 on postcard, p. 129

"Yellow Strand Flattened Strand Outlasts Conventional Wire Rope By 35%"

Ellroy King, President — Halliburton Portland Cement Company

How does Halliburton Portland Cement Company, Corpus Christi, Texas feel about Yellow Strand Flattened Strand? Hear what President Ellroy King says: "We've used B & B rope products for 4 years, and find them to be highly satisfactory. Flattened Strand on our overhead crane outlasts conventional wire rope by 35%."

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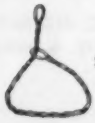


SLINGS

CLIPS

Continental has the cure for vibration "headaches"

the one-piece locking screw that won't work loose

IN MARKET CARTS — STAY TIGHT, RESIST SHOCKS OF SEVERE SERVICE

HOLTITE NYLOK hex head cap machine screw fastens chrome-plated steel tubing at right angles. Driven through holes in one section into tapped steel plug in end of adjoining part. Hold securely despite punishment of customer use.

IN CARBURETORS — HOLD ADJUSTMENT OF ANTI-STALL CONTROL

Hex head steel HOLTITE NYLOK machine screw maintains constant adjustment of anti-stall device attached to carburetors. Holds spring at required tension without variation through wide range of temperature changes.

IN EXHAUST FANS — HOLD MOTOR SECURELY DESPITE VIBRATION

Phillips truss head steel HOLTITE NYLOK machine screws are driven through rubber insulation mount into flange of vertical mounted motor. Screws do not loosen, resist constant vibration.

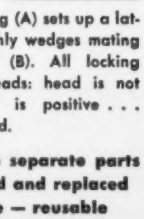
IN SHEARS AND SCISSORS — HOLD BLADES IN PROPER ADJUSTMENT

Binding head steel HOLTITE NYLOK machine screws are driven through drilled hole in one blade into tapped hole in mate. Hold proper blade contact, — permit easy disassembly for sharpening.

HOLTITE® NYLOK® Self-locking Screws

HOLTITE® NYLOK machine screws are the simplified self-locking fasteners with the Nylon insert that eliminates the need for lock washers, jam nuts, wiring and similar devices. If you have assemblies where screws *must stay* where they are set, NYLOK is your practical choice. The applications above show how you can save trouble and complaints, — give your product a sales advantage.

CHECK YOUR ASSEMBLIES — find out where Continental engineered fasteners, like HOLTITE NYLOK, can cut your assembly costs. Plan now to consult the Continental Assembly Specialists. They will analyze your operations and tell you which fasteners — *standard or special* — can save you most. For prompt service, write or phone: Continental Screw Co., 450 Mt. Pleasant St., New Bedford, Massachusetts.



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Interchangeable — reusable
Locks seated or unseated
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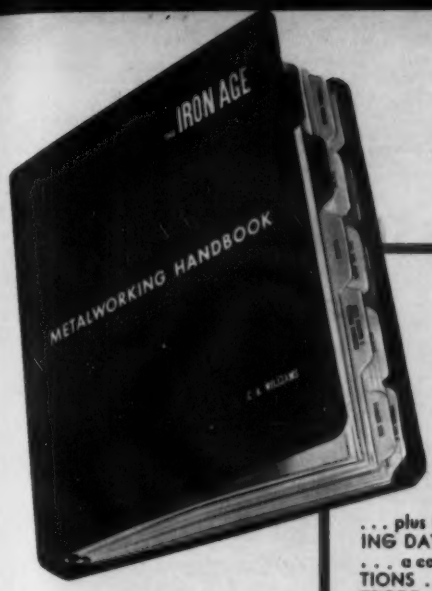

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Adaptable to jobs weighing 1 to 175 tons, this welding positioner has a four-speed gearshift transmission for greater choice of rotation speeds. High gear permits automatic welding at high rates. Unit is 88 in. high. It is described and illustrated in a two-page data sheet. (Aronson Machine Co.)

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Dynamic Torquemeters

A two-page bulletin describes a torquemeter for measuring torques on shafts turning from 50 to 12,000 rpm. Ranges are available to from 5 to 250 oz-in., accurate within 2 pct. of full scale. (Metron Instrument Co.)

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Machine Replacement

A booklet describes the author company's "Avoidable Costs" Replacement Formula as an aid for management and production executives concerned with machine-tool and capital-equipment replacement. Limitations and fallacies of many commonly used replacement formulas are revealed. (Jones & Lamson Machine Co.)

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Hydraulic Presses

Information and specifications on a line of rugged four-column hydraulic presses are presented in a four-page brochure. With capacities of from 25 to 1000 tons, they are adjustable for up- or down-action and feedable from any side. (K. R. Wilson, Inc.)

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Carbide Guide

A data sheet cross-references industry designations C-1 through C-14 with the designations of 15 producers of tungsten carbide. The sheet includes hints on application, and countering of different types of wear. (Adamas Carbide Corp.)

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Hex-Socket Cap Screws

A series of larger-head-diameter hex-socket cap screws is described in a new bulletin. Giving up to 2⅓ times more load-carrying capacity, these cap screws have heads 1½ times body diameter and, in many cases, larger socket sizes. (The Allen Mfg. Co.)

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Miller Program Tracer

A six-page illustrated bulletin describes cost-saving features of a fully automatic programmed control system for milling applications. (True-Trace Sales Corp.)

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Diamond-Wheel Guide

A six-page pamphlet discusses the selection, uses, and care of diamond cutting wheels. Setup is discussed in detail. (Navan Products, Inc.)

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Chip-Separator Filter

An impingement-type filter for the cleaning of coolants and cutting oils containing ferrous and nonferrous contaminants is described in a product bulletin. It handles high flow rates, requires little floor space, and operates at very low cost. (Infilco, Inc.)

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Aircraft Tubing

A line of seamless aircraft tubing and carbon and alloy steels is described in a 70-page technical handbook. Definitions, specifications, and applicable data are included. These tubing grades are, of course, not confined to aircraft applications, but find many other uses. (Ohio Seamless Tube Div. of Copperweld Steel Co.)

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Foil Strain Gages

A line of etched-foil strain gages is described in a six-page bulletin. Sensitivity and ruggedness advantages over bonded wire gages are discussed. (Electronics & Instrumentation Div., Baldwin-Lima-Hamilton Corp.)

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Molybdenum Alloys

Molybdenum and molybdenum-titanium alloys in standard mill forms are listed in a 24-page catalog and price schedule. (Universal-Cyclops Steel Corp.)

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Gray-Iron Castings

A 75-page book lists manufacturers of gray-iron castings and specifies their lines. One hundred forty different classes of the most common castings are included. (Gray Iron Founders' Society, Inc.)

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Gas Manifolds

A complete line of manifolds for industrial gases is described in a 24-page catalog. Data are included on standard manifolds, as well as on some special models for carbon dioxide, liquid oxygen, argon, and nitrogen. (Air Reduction Sales Co., a div. of Air Reduction Co., Inc.)

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Iron-Nickel Alloy Guide

"Directory of U. S. Producers of the Iron-Nickel Alloys" is now available to aid procurers of special-property alloys, by listing compositions, manufacturers, and forms available. A trade-name index is included. (The International Nickel Co., Inc.)

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Centralized Lubrication

Use of modern centralized lubrication to reduce costs and improve production is thoroughly discussed in a new 16-page brochure. Its advantages over manual greasing and oiling, and its installation, are discussed. (Lincoln Engineering Co.)

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Lifting Magnets

Covering both all-welded and bolted magnets, a new 12-page bulletin provides operating data and lifting capacities for magnets ranging up to 80-in. diam. (The Electric Controller & Mfg. Co., Div. of Square D Co.)

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Metals Training

A new in-plant training brochure compiled by the ASM Metals Engineering Institute describes Institute procedures for in-plant study groups using MEI metallurgy courses. (Metals Engineering Institute)

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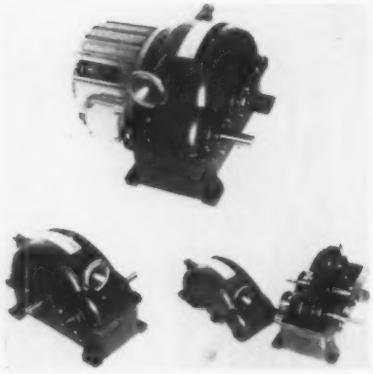


Transmission Affords 3:1, 9:1 Gear Ratios

A variable-speed transmission uses a combination TV-belt for a 3:1 ratio with constant horsepower. The driver is a timing belt pulley giving constant travel speed to the belt. The toothed portion rides over the timing pulley. Speed is adjusted by rotating with a worm the plate assembly carrying the idler pulleys, moving the V-belt into or out of the variable-speed pulley, allowing the belt to operate at smaller or larger pitch diameter, respectively. Rated capacity is 1.5 hp at 1750 rpm. The 3:1 overall ratio can be increased to 9:1 with an auxiliary gear box. The transmission requires no internal lubrication and can be operated in any position. (Western Mfg. Co.)

For more data circle No. 36 on postcard, p. 129

Oiltight Pressure Switch Operates to 5000 psi

An oiltight pressure switch is available for heavy-duty uses on machine-tool hydraulic systems operating at pressures up to 5000 psi. It is a compact unit in a diecast aluminum enclosure sealed to exclude oil and water. A calibrated range scale and indicator show the operating pressure. A visible trip indicator shows when the contacts operate. Range adjustment, mounted on top, changes both operating pressure and reset pressure. An internal differential adjustment controls the reset pressure only. A snap-action mechanism keeps high contact pressure to point of switchover. The contact block has two isolated circuits which may be arranged for single-pole double-throw operating, or separate-circuit operation. (Allen-Bradley Co.)

For more data circle No. 37 on postcard, p. 129

Flexible Chuting Is Easy to Install, Change

Flexible chuting is available for gravity-feed rolling or sliding part conveyance. It consists of spring-steel side and ride rails that combine structural strength with flexibility of installation and versatility of part application. Bolted construction permits fast on-site assembly. It cannot be obsoleted—rearrangement of rails and spacers will accommodate part design changes or new parts. Open-channel design allows chips and foreign matter to drop through. (F. Jos. Lamb Co.)

For more data circle No. 38 on postcard, p. 129

Mill Cutter Uses Throwaway Carbide Inserts

A milling cutter uses indexable throwaway carbide inserts and reduces milling time as much as 50 pct. The cutter insures automatic precision blade holding and support, yet allows each insert to be indexed in about 30 seconds. Inserts set in precision-ground pockets, insuring accurate resetting. The inserts are made to provide 4 to 8 cutting surfaces, in grades for cast iron or steel. The cutter body is produced in 4- to 12-in. diam sizes. (Super Tool Co., a div. of Van Norman Industries)

For more data circle No. 39 on postcard, p. 129

New Electric Motor Line

Redesign of a complete line of ac motors has been announced by a company's medium ac motor and generator department. Ranging in size from 1 to 7000 hp, the new motors all feature smaller size and improved insulation. New components to improve performance and accessories to adapt certain motors to special uses are also mentioned. (General Electric Co.)

For more data circle No. 40 on postcard, p. 129

Malleable for Easy Job

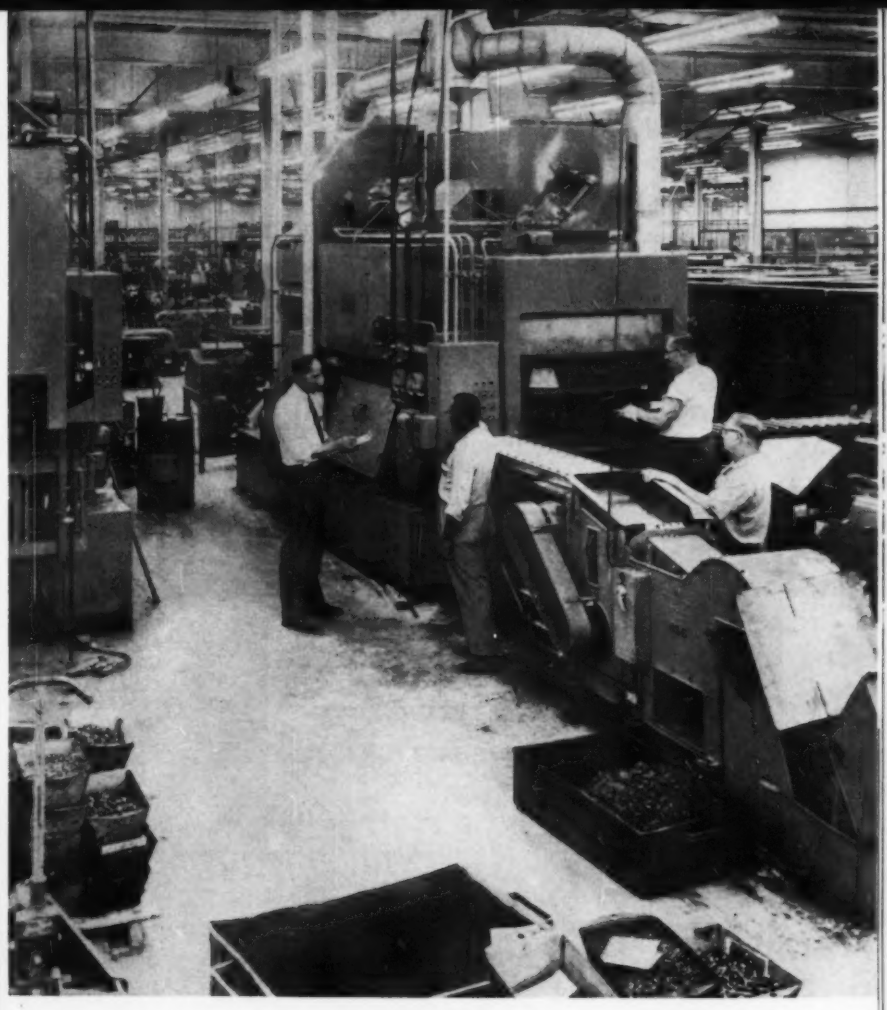
A clever change to malleable iron for a small part made from a casting resulted in a cost saving of 30 pct over the material used previously. Strength, ductility, and castability contributed to the selection of malleable iron. The part was cast as

shown in the photograph to avoid using deep pockets in the mold. After malleabilization, the upper arm was bent to the desired position and the center hub coined to exact size in one fast, economical operation. (Malleable Founders Society)

For more data circle No. 41 on postcard, p. 129

Three Plating Products

Three chemical agents for plating are announced. One is a "one-shot" brightener for semi-bright buff cyanide copper plating solutions. It is easily controlled to produce any desired level of brightness. Over steel, zinc, brass, or bronze parts, it produces a copper film that can be bright nickel plated without the need for buffing. Another product is a Rochelle salts replacement which increases cathode and anode efficiency and ties up impurities, including hard-water salts. A product for chrome reduction is also



Better Cleaning means Better Socket Screws for your Customers

from ALLEN

These new industrial washing machines wash every Allen product — after each processing operation, and before heat treating — to remove all abrasives and contaminants. After washing, a vibrating de-chipper (shown in the foreground) removes metal particles that may adhere to products in process.

These are among the great many special features in Allen's new plant that assure you of constantly higher quality in socket screws. More than ever, you'll find that ALLEN is the "Buy-Word" for socket screws, as well as keys, dowel pins, and pipe plugs.

The scientific design of the cup diameter on ALLENPOINT Set Screws gives greatly increased resistance to *withdrawal* torque. You can count on Allenpoints to stay tighter longer, under heavy strain and vibrations. This dependable performance is yours to use at no premium in cost. Available in a full range of standard sizes from No. 0 thru 1". For samples and more information, ask your Industrial Distributor, or write direct to The Allen Manufacturing Company, Hartford 1, Connecticut.

ALLEN HEX-SOCKET SCREWS HEAD

available. It reduces high-chrome contamination or can be used as a maintenance addition to keep chrome contamination under control. (Allied Research Products, Inc.)

For more data circle No. 42 on postcard, p. 129

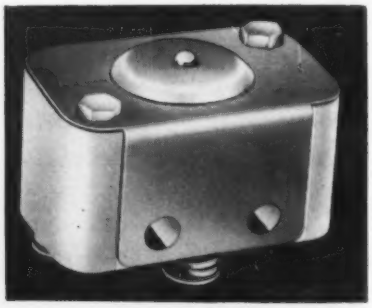
Speed-Control Valve

A low-cost, lightweight speed-control valve is available for 0-to-150 psig air service. Available in ⅛- and ¼-in. pipe sizes, it has a five-turn metering adjustment from closed to full open. Short installation radius and small dimensions suit limited - space installations. (Ross Operating Valve Co.)

For more data circle No. 43 on postcard, p. 129

Small Precision Switch

A new limit or sensitive switch



where units with plastic or other organic materials cannot hold up. Of miniature size, it has high vibration resistance and current capacity. Of single-pole, double-throw design, it has a simple switching element and weighs only 1 oz. (Metals & Controls Div., Texas Instruments Inc.)

For more data circle No. 44 on postcard, p. 129

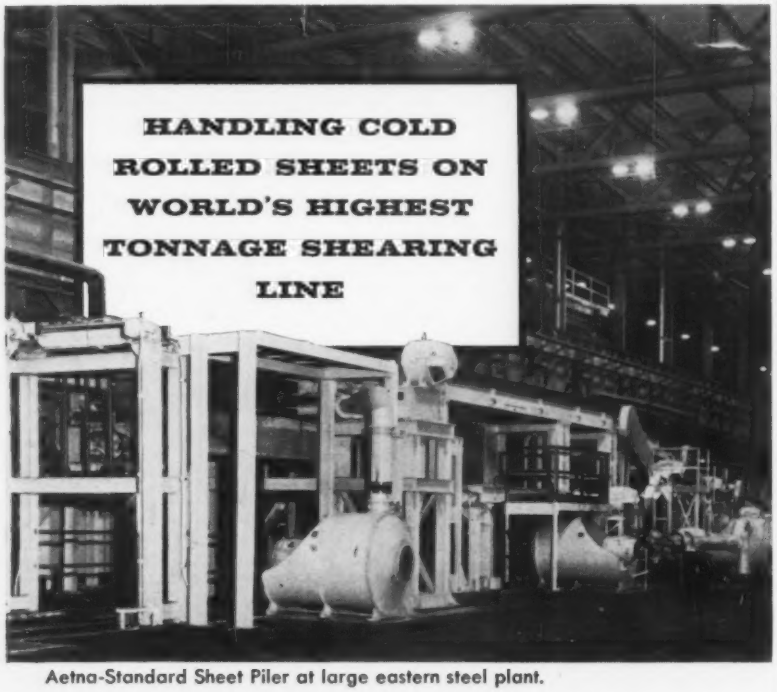
Versatile Welding Wire

A low-alloy wire gives clean, sound, high-strength weldments. Designed for CO_2 welding to scavenge the weld metal of impurities and residual gases, it is useable as a submerged-arc electrode, yielding tensile strengths up to 120,000 psi. It has excellent elongation properties. It is very successful in welding automotive-type steels. It also welds up blow holes and other faults in Grade B steel castings with good results. (American Chain & Cable Co., Inc.)

For more data circle No. 45 on postcard, p. 129

Compression Aftercooler

Improved models are available of an aftercooler for cooling and drying compressed air or gases. Increased capacity in more compact size results from improved cooling-coil and manifold design. Compressed air is cooled to ambient air temperature, to insure against fur-



Aetna-Standard Sheet Piler at large eastern steel plant.

SPENCER Blowers "Float" Sheets into Piler Bin

ALSO MANUFACTURERS OF
PNEUMATIC CONVEYING SYSTEMS
INSTALLED VACUUM SYSTEMS
PORTABLE VACUUM CLEANERS

An air "cushion" created by the Spencer blowers permits sheared sheets to "float" down into position . . . reduces surface scratching and speeds production.

Whatever your requirements in dependable air delivery . . . whether for special applications like this or for standard needs in supplying combustion air . . . it will pay to check with SPENCER—first in service to the metalworking industry since 1918.

Request Catalog 126C containing complete information on Spencer blowers.

The SPENCER TURBINE COMPANY
HARTFORD 6, CONNECTICUT

ther condensation. The aftercooler is produced in nine sizes with a range of free-air capacity from 200 to 12,000 cfm, matching compressor sizes from 40 to 2500 hp. Cooling-water consumption is less than 5 pct of that used in direct surface-contact methods. (Niagara Blower Co.)

For more data circle No. 46 on postcard, p. 129

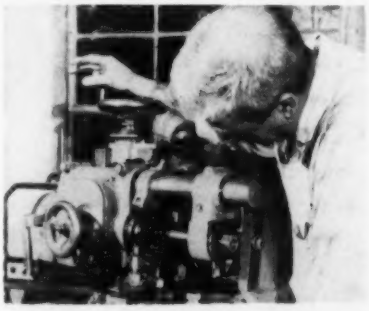
Alloy for Ductile Iron

More efficient production of ductile iron is now achieved with a high-magnesium silicon-base alloy containing 30 to 32 pct magnesium, 50 to 55 pct silicon, 4 to 5 pct calcium, and 1 pct mischmetal. It is plunged into a ladle of iron, and magnesium recoveries up to 50 pct result. Many other advantages are obtained. (Union Carbide Metals Co., Div. of Union Carbide Corp.)

For more data circle No. 47 on postcard, p. 129

Cutting Fluid

Switching from oil-type cutting fluids to a special water-type product solved a tough machining problem and increased production and tool life. The job consisted of milling and drilling titanium forgings to close tolerances and so as to prevent warpage. This new product



had superior cooling properties and excellent lubricity, even when highly water-thinned. It permitted higher speeds and feeds, eliminated warpage, produced smoother finishes, and kept tools sharp considerably longer. (Keystone Lubricating Co.)

For more data circle No. 48 on postcard, p. 129

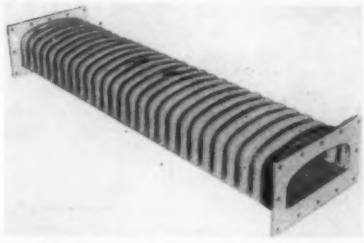
Protective Coatings

Two new protective coatings are announced. One is a non-skid waterproof decking, resistant to abrasion, moisture, oils, greases, and chemicals. The other is a fumeless and odorless tank lining, resistant to penetration by steam, hot water, and petroleum products. They are easy to handle and to apply to steel, nonferrous metals, and other building materials. (Horsey-Robson & Co., Inc.)

For more data circle No. 49 on postcard, p. 129

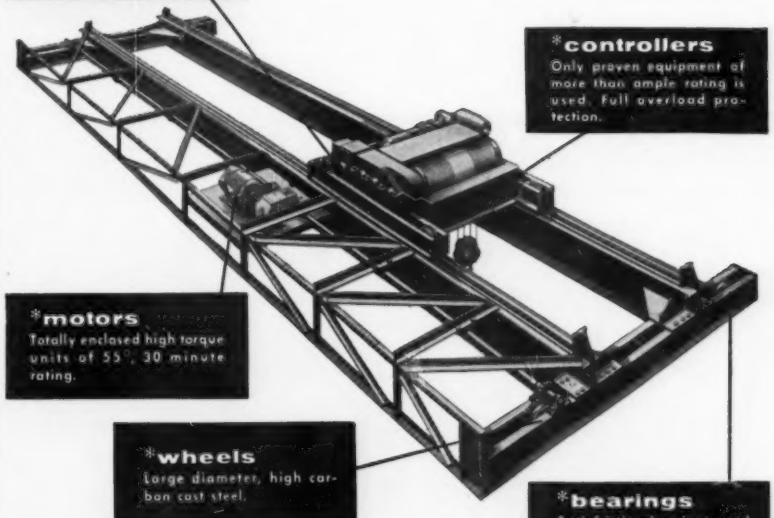
Heat-Treat Muffles

Muffles for heat-treating operations feature longer-wearing corrugated construction. Warping and



buckling at high temperatures are virtually eliminated by this design.

no crane of comparable quality is more *CONSERVATIVELY PRICED!*


*load brakes
Powerful disc and helix type with high safety factor.
*controllers
Only proven equipment of more than ample rating is used. Full overload protection.
*motors
Totally enclosed high torque units of 55°, 30 minute rating.
*wheels
Large diameter, high carbon cast steel.
*bearings
Anti-friction bearings used throughout. Oversized roller bearings (double row) used in main truck wheels.

ABELL-HOWE
cranemaster

*In any crane, these are the parts that handle the heavy work . . . the parts that *must be* top quality if you're looking for crane *dependability.* Compare Cranemaster engineering at these critical points with any industrial shop crane. Then compare prices. Time and time again Abell-Howe proves it has the top value in overhead traveling cranes . . . in capacities to 20 tons—spans to 60 feet.

Send for **BULLETIN C-108**

7747 Van Buren Street — ABELL-HOWE COMPANY — Forest Park, Illinois

Handling Coil Stock?

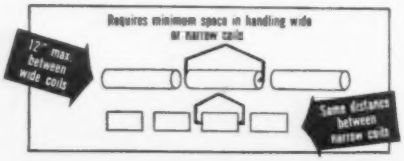
CHECK THESE

C-F LIFTER

ADVANTAGES

- 1 Lifter handles wide range of coil sizes
- Requires minimum of only 10" to 12" between piles —saves storage room
- 1 man operation — eliminates hookers
- Positive grip on coil — no damage to material

• C-F Coil Lifters are saving time and labor in many plants and warehouses because they can pick up, carry and set down a coil of steel faster and safer than any other method. Infinite jaw openings permit handling a very wide range of coil widths . . . carrying legs open fast, stay open until operator closes them on coil. Narrow legs require minimum space between piles – a space saving advantage. Made in motorized models for crane cab or pendant operation as well as manual types with chain wheel, in capacities from 3 tons up. Powered Rotating Heads available. Opening ranges to suit your requirements. Write for illustrated Bulletin.



CULLEN-FRIESTEDT CO.

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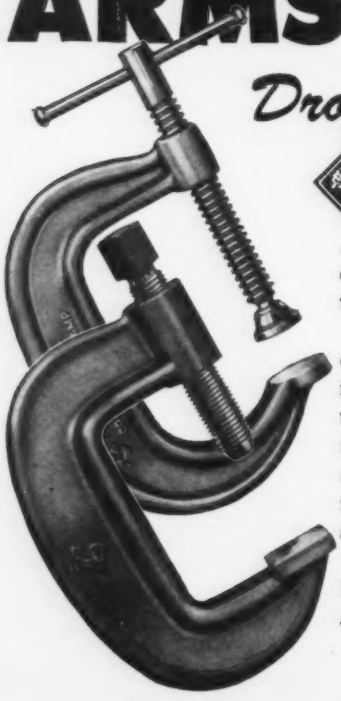
ARMSTRONG

Drop Forged CLAMPS



LEADERS IN THE DROP FORGED CLAMP FIELD

. . . in design, machining and strength; in completeness of line in both sizes and types.

Designs are based on a full knowledge of clamp uses and requisites. Drop forging assures die-perfect form, texture toughness and freedom from structural faults. Maximum stiffness is attained by a discerning selection of steels with accurate controlled heat-treating, tempering and testing.

For dependability and long useful life, specify and standardize on ARMSTRONG Drop Forged Clamps.

Write for ARMSTRONG General Catalog showing almost 5000 industrial tools

Buy ARMSTRONG TOOLS from your Industrial Distributor

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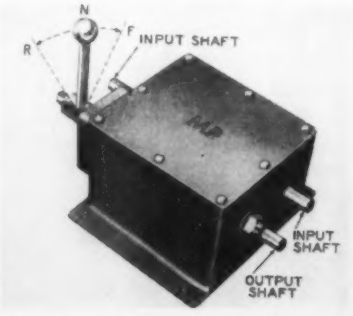
DESIGN DIGEST

They can be made to virtually any size or metal specification, and are welded by any of the three standard techniques. (Wiretex Mfg. Co., Inc.)

For more data circle No. 50 on postcard, p. 129

Reversing Transmission

For light to medium power applications in machine tools and other machinery, an instant-reverse transmission provides fast, smooth reversing at all speeds by single-action lever. It combines direct-gear and chain-drive principles with two



opposing clutches. Directional changes are entirely clutch-action, and can be instantaneous at any speed. Low in cost, it is available in a variety of models. (Mentor Products, Inc.)

For more data circle No. 51 on postcard, p. 129

Cleaning Magnets

Powerful plate magnets remove dangerous iron junk from materials in process. They are installed in chutes, spouts, ducts, conveyors, or other processing equipment. An oriented ceramic magnetic material provides strong magnetic force and is moistureproof. Uniform flux density throughout the pole area prevents the junk iron from being accelerated as it approaches the air gap, and enables the magnet to grip it abruptly and firmly. These magnets are made in four sizes and styles. (Stearns Magnetic Products, a Div. of The Indiana Steel Products Co.)

For more data circle No. 52 on postcard, p. 129

This is a picture of a new product

It's nothing you can use in your plant tomorrow — or even next year. But Allis-Chalmers is working on it *now* to meet the needs of industry in the future.

Fundamental research of materials, processes and equipment is an important part of the A-C contribution to industry. *This enables product design engineers to make existing products even better, to create a continuous flow of new equipment, to help industry achieve new efficiencies and economies.*

Research and development are only two reasons why A-C is recognized as a leader in supplying both electrical and mechanical equipment for industry. Single-source availability of "teamed" equipment, maximum engineering help and outstanding service facilities are others.

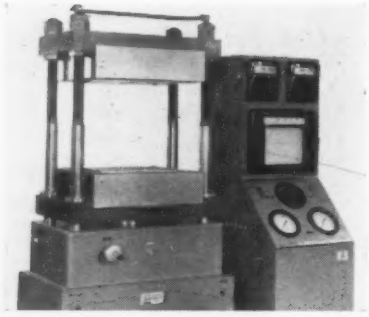
Talk *to your A-C representative or distributor soon about your requirements. Or write Allis-Chalmers, Milwaukee 1, Wisconsin.*

ALLIS-CHALMERS

A-1004-G1

THIS high temperature, high pressure experimental apparatus is used to induce changes in existing materials, to produce new materials. From such experiments come new equipment efficiencies and economies.

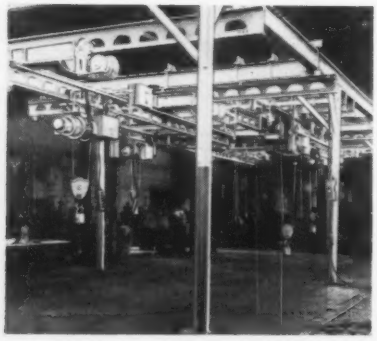
New Equipment and Machinery



Hot-Platen Press Is Insulated to 1500°F

For production molding or research-and-development use, this press offers electrically heated, individually controlled and recorded platen temperatures to 1500°F. Platens are so insulated that the press frame is not heated, nor is the surrounding area a "hot-oven" condition. A motorized hydraulic system includes variable closing and pressing speeds, and large pressure gages to permit accurate reading in all ranges. Platen sizes range from 8 to 24 in. square. Tonnage ranges from 40,000 to 1,000,000 lb for ram force. (Pacific Hydraulics, Inc.)

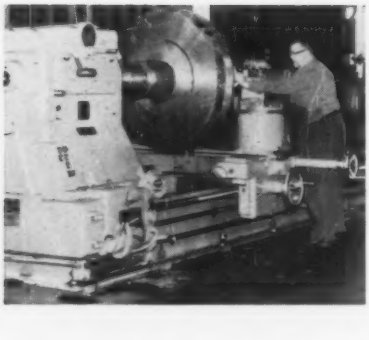
For more data circle No. 69 on postcard, p. 129



To Be Shown at Material Handling Exposition

An operating exhibit of a complete diversified line of overhead material handling equipment will be seen at the Material Handling Institute Exposition next month. This display will match actual working conditions as nearly as possible. Manual and power-driven overhead cranes, carriers, and hoists will be included. Fully automatic system of cranes and carriers, including automatic handling from one elevation to another, will be shown, as well as a complete line of electrification for cranes, runways, and overhead handling systems. (Cleveland Tramrail Div., The Cleveland Crane & Engineering Co.)

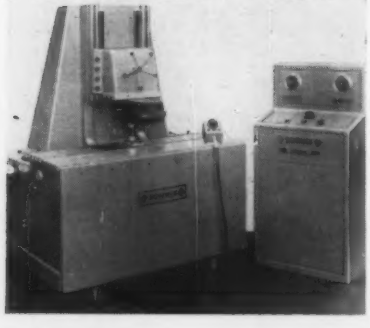
For more data circle No. 70 on postcard, p. 129



Missile Lathe Contour-Turns Pipe Mill Rolls

A lathe designed for missiles contour turns huge pipe mill forming rolls. A fluid tracer enables automatic contouring of high-carbon, high-chrome steel rolls from 22- to 50-in. diam. Throwaway carbide inserts are used. About ¾ in. of stock is removed from the roll OD, with angular dimensions held quite close. Cutting speeds are 120 sfpm for roughing and 160 sfpm for finishing. The lathe swings 5 ft and will take parts 14 ft long between centers. A 50-hp motor drives it at from 5 to 306 rpm, with 60-some feeds. (Sidney Machine Tool Co.)

For more data circle No. 71 on postcard, p. 129



Large-Stroke Fatigue-Tester Has Many Uses

Four sizes of Schenck vertical fatigue-testers covering a load range from 0.6 to 20 tons and a frequency range (load cycles) from 600 to 10,000 cycles per minute, are available. Their large stroke enables testing very soft materials with low frequency, and rigid parts with high frequency. It extends their uses to torsion and bending tests, also. An infinitely variable speed drive adjusts frequency as close as possible to actual operating conditions. The vibrating head uses a push-pull action; however, a series of standard accessories permits conversion for other type tests. (Cosa Corp.)

For more data circle No. 72 on postcard, p. 129

New insulation adds years to motor life

Super-Seal motors withstand abrasion, physical stresses, moisture, heat aging

A drip-proof enclosure is usually all you need with the remarkable new insulating systems and advanced mechanical features of *Super-Seal* motors.

New motors are protected with the *Silco-Flex* stator coil insulating system: A homogeneous dielectric barrier of vulcanized silicone rubber possessing unmatched resistance to abrasives, moisture and most corrosive or chemical atmospheres.

Synchronous machines have *integrated* field coils that seal against contaminants . . . bond and lock against mechanical forces.

Contact your nearby A-C office or write Allis-Chalmers, Power Equipment Division, Milwaukee 1, Wisconsin.

Super-Seal and Silco-Flex are Allis-Chalmers trademarks.

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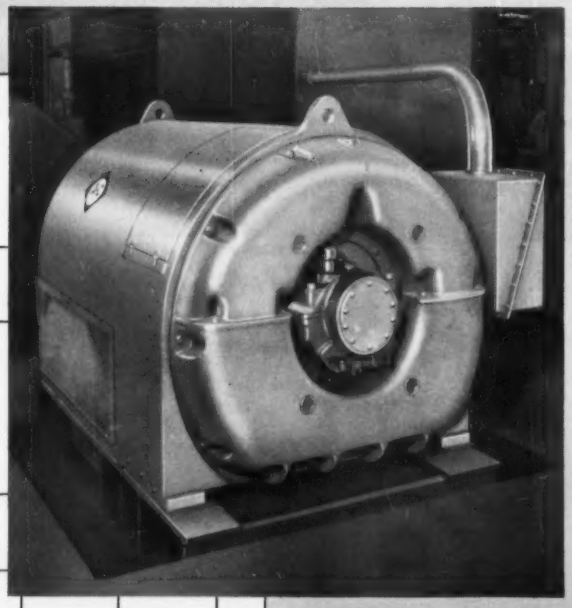
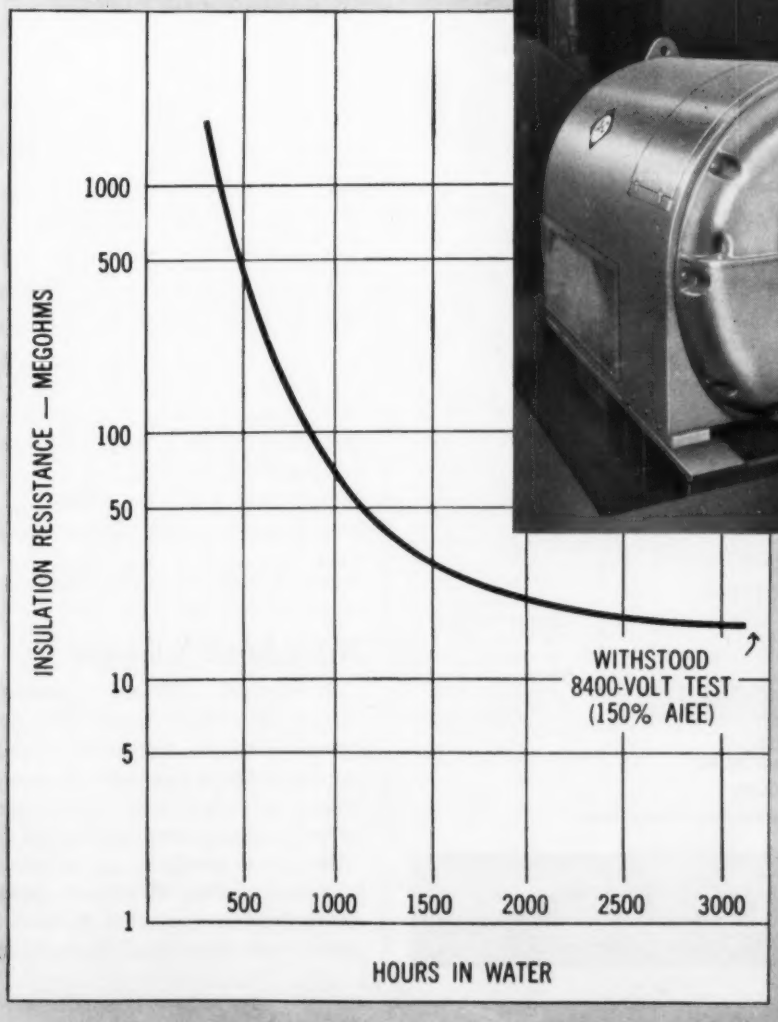
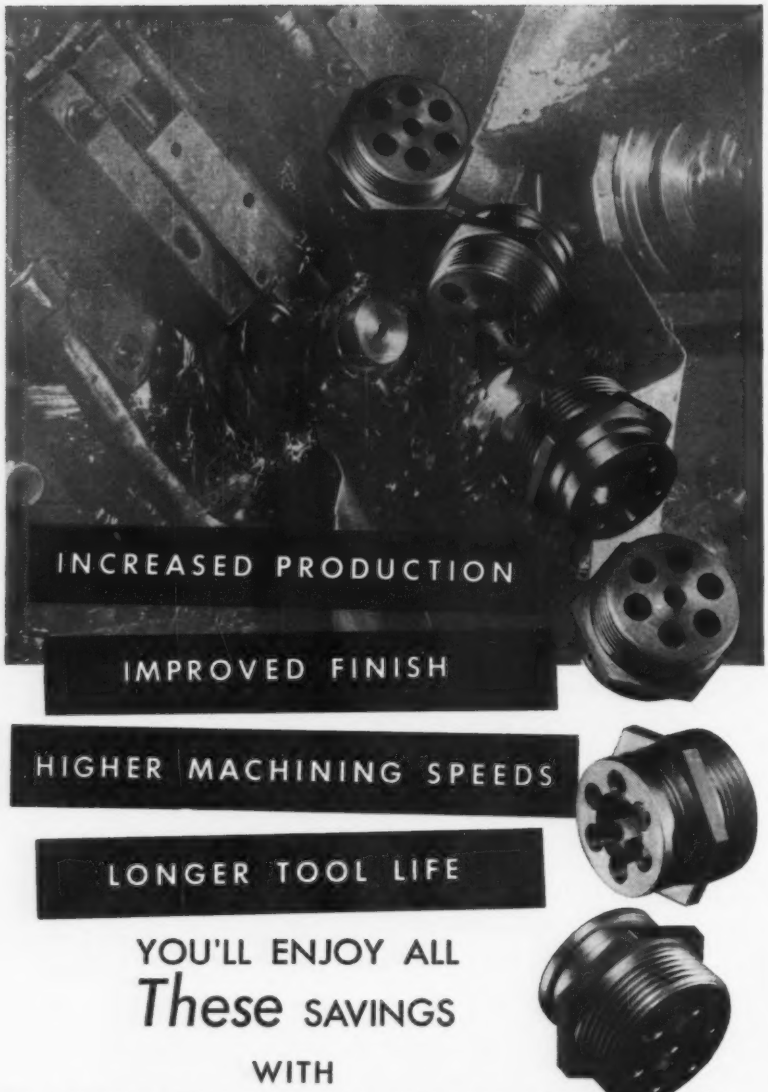




Silco-Flex Insulation | Polyester Mica Tape | Asphaltum Mica Tape

Sandblasting proves the difference! Only *Silco-Flex* insulation stood up after one minute using 90-grit aluminum oxide and 100-psi air from distance of 6 inches.

Chart shows insulation resistance in water of a 2300-volt *Silco-Flex* insulated coil, completely immersed with 2300 volts applied continuously.


INCREASED PRODUCTION
IMPROVED FINISH
HIGHER MACHINING SPEEDS
LONGER TOOL LIFE
YOU'LL ENJOY ALL
These SAVINGS
WITH
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LEADED STEELS
AVAILABLE IN A.I.S.I. ANALYSES
CARBON AND ALLOY STEELS
SPECIALISTS IN COLD FINISHED STEELS EXCLUSIVELY
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GENERAL OFFICES:
Gateway Center, Pittsburgh 30, Pa.
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OUR CONSTANT RESEARCH PROGRAM IS YOUR BEST GUARANTEE OF QUALITY CONTROL
WYCKOFF STEEL PRODUCTS • Carbon, Alloy and Leaded Steels • Turned and Polished Shafting • Turned and Ground Shafting • Large Squares • Wide Flats up to 12¾" x 2¼" and 14" x 1¼" • All types of Furnace Treated Steels including Carbon Corrected Steels

NEW EQUIPMENT

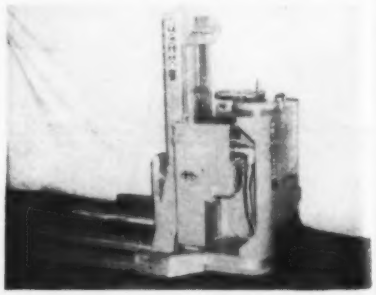
Heavy Honing Machines

A new line of heavy-duty horizontal honing machines perform heavy or rapid stock removal from large diameters and longer-than-average bores. Rapid and fine feeds are provided, with 4-ft hydraulic head stroke and eight-speed transmission. Workpiece handling equipment is built in. Machines can be supplied to handle almost any length bore and diameters up to 36 in. (Micromatic Hone Corp.)

For more data circle No. 73 on postcard, p. 129

Hazardous-Duty Truck

The latest type in a line of fork-lift trucks for operations in explosion-hazardous areas will be shown at the MHI Exposition. Carrying Underwriters' label with EX rating for operation in Class I Group D areas, it has many special features,



such as a totally enclosed electrical system, an anti-kick-back device on the steering mechanism, hydraulic dead-man brakes, and other special mechanical features adding to ease of operation, low maintenance cost, and operator safety. (Revolvator Co.)

For more data circle No. 74 on postcard, p. 129

Ultrasonic Cleaner

A compact ultrasonic cleaning system for applications such as gyros, bearings, instruments, and even mechanical assemblies, is available. Only hot and cold water sources, drain connections, and a 220-v 60-cycle current are required. Ultrasonic energy at 40,000 cycles per second is converted by a ceramic transducer into mechanical

vibrations of the same frequency, which cavitate the cleaning liquid, blasting all contaminants from any part to be cleaned. (Branson Ultrasonic Corp.)

For more data circle No. 75 on postcard, p. 129

Height Size Gage

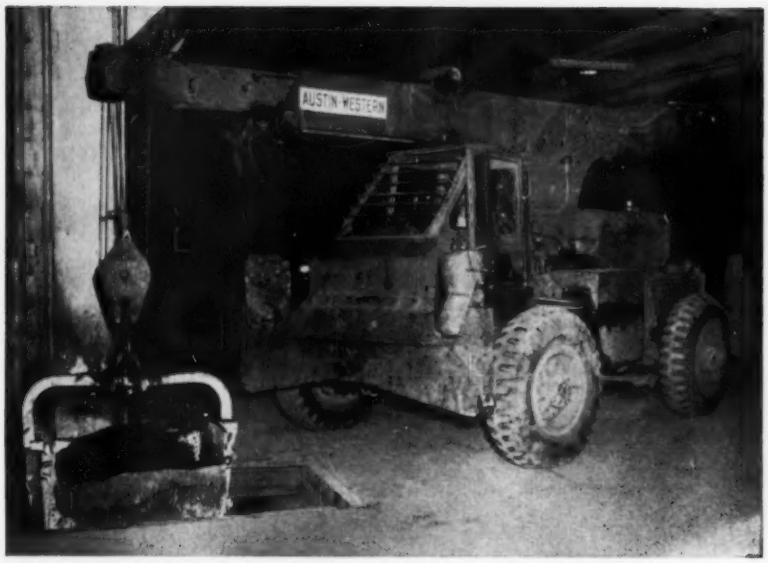
A height size gage embodies several exclusive features, yet sells at an attractive price. The operator can set exact dimensions, accurate to 50-millionths, without time-consuming assembling of gage blocks. By using a transfer gage it is possible to inspect drill jigs, lathe

fixtures, gears, cams, profiles, etc., and many shop operations. Setting of position depths is simple with this gage. Light in weight, it comes in a standard 10-in. model. Available as accessories are 3- and 6-in. riser blocks and an 18-in. transfer gage. (The Van Keuren Co.)

For more data circle No. 76 on postcard, p. 129

Noise-Survey Meter

A palm-sized, noise-survey meter to monitor and measure noise hazards is announced. Housed in a plastic case about the size of a shaver, it weighs 12 oz. It is designed for rapid, multi-location measurement of sound levels to establish noise-contour "maps" in large plants. In conjunction with a soundscope, it can be used to measure energy distribution of sound within a narrow frequency band. Range is 75 to 140 db. Two models



Operator demonstrates advantages of A-W hydraulic crane's maneuverability as he operates in tight quarters at United States Steel Corporation's Fairless Works.

United States Steel uses Austin-Western hydraulic crane — speeds plant maintenance

An Austin-Western 210 hydraulic crane is assigned to plant maintenance at United States Steel Corporation's giant Fairless Works, Fairless Hills, Pa. It has proven a dependable, highly versatile piece of equipment.

Exceptional maneuverability

Its ability to maneuver in tight quarters with low overhead clearances enables the crane to speed removal of waste materials from pits beneath the open hearth furnaces. In this typical task, the crane is driven into position, its boom extended, and a special bucket attachment (shown above) lowered, filled and hoisted back to the surface for rapid transport by this rubber-mounted unit to an outside dumping area.

The A-W hydraulic crane is available self-propelled, truck or stationary mounted. Its 18-ft. telescoping boom rotates in a full circle. Incorporated is A-W's exclusive all-wheel drive and all-wheel steering to assure power and traction in combination with superior maneuverability. Turns in less than its own length!

Easy, economical to operate

Full hydraulic controls assure fast, safe, precision operation. A wide selection of optional attachments gives added versatility to these easy-to-operate all-purpose units. Choice of gas or diesel power. Travels up to 34 mph.

Investigate! Learn how A-W hydraulic cranes can safely and economically speed your operations for extra profit. See your nearby Austin-Western distributor or write to us today!

A-W sweepers available in 2 and 4 plus-yd. capacities.

Austin Western 100th YEAR 1859 AUSTIN-WESTERN 1959 PARTNERS IN PROGRESS

CONSTRUCTION EQUIPMENT DIVISION, AURORA, ILL.

BALDWIN · LIMA · HAMILTON

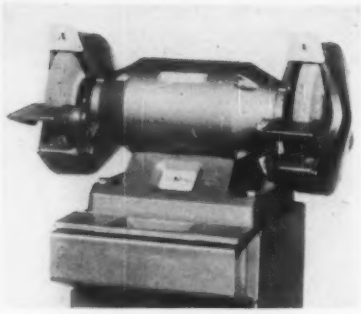
BALDWIN BLH LIMA-HAMILTON

Power graders • Motor sweepers • Road rollers • Hydraulic cranes

are offered, for different uses. (Mine Safety Appliance Co.)
For more data circle No. 77 on postcard, p. 129

Extra-Heavy Grinders

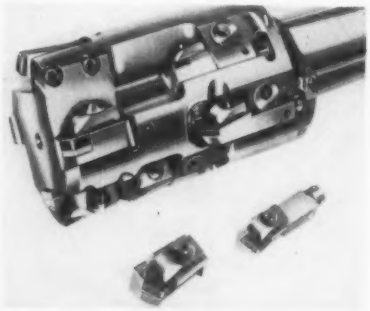
A new line of extra-heavy-duty grinders are designed for production work. Rigid and powerful, they are available in ½-, ¾-, and 1-hp sizes. Tool rests are adjustable, and the



extended frame construction permits grinding large odd-shaped parts. Ball-bearing construction is lubricated for life. (Stanley Electric Tools, div. of The Stanley Works)
For more data circle No. 78 on postcard, p. 129

Multi-Point Tooling

A practical and economical system of employing the throwaway insert principle in complex multi-point and multi-diameter tooling has been announced. On the job in selected high-production plants for about a year, this type of tooling has in every case increased production and reduced costs in comparison with that of brazed or inserted blade tooling. The system uses com-



pletely standardized insert-holding cartridges of extreme precision. They are mounted on hardened steel rest buttons in the cutter body, with close tolerance-compensation control. Cartridges are completely interchangeable; so a modest cartridge inventory suffices. These cartridges are stocked in all rakes and cutting angles. (Valenite Metals)
For more data circle No. 79 on postcard, p. 129

Grinder-Finisher

Unique two-layer construction of a new wheel for portable grinders

reduces downtime on weld grinding and finishing. Both operations can

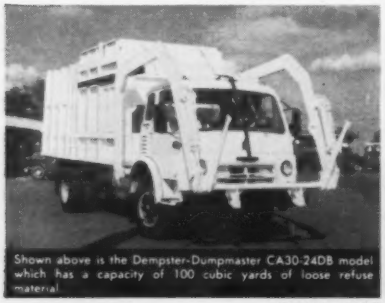
New King-Sized DUMPMASTER Automatically Collects and Hauls Up To 120 cu. yds. of Refuse per Trip

DEMPSTER BROTHERS' Newest Addition Cuts Waste Disposal Costs

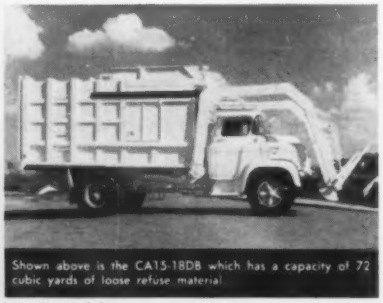
The famous DEMPSTER-DUMPMASTER 24DB now has a big brother in the CA60-30DB model. Like the original Dumpmaster, it automatically handles detachable containers in one through six cubic yard sizes. However, it can pick up a gross load of 6000 pounds as compared to the 24DB's 3000 pound capacity.

Another important difference in capacity—the new model can compact up to 120 cubic yards of loose refuse while the 24DB gets up to 100 cubic yards per trip. Like all Dumpmasters, the new 30DB has clearance arms for safety . . . they never pass the cab windows . . . can't injure the operator.

Write For FREE BROCHURE



Shown above is the Dempster-Dumpmaster CA30-24DB model which has a capacity of 100 cubic yards of loose refuse material.



Shown above is the CA15-18DB which has a capacity of 72 cubic yards of loose refuse material.

Patents Pending
DEMPSTER BROTHERS Inc.

Dept. IA-5B

The Originator and Only Manufacturer of the
DEMPSTER DUMPSTER® SYSTEMS

DEMPSTER BROTHERS • KNOXVILLE 17, TENN.

be performed without changing wheels. With the wheel held at larger angles to the workpiece, the upper, coarse layer grinds the material for fast stock removal. At small angles, the lower, fine layer is brought to bear and produces an excellent finish. The top layer is standard; the finishing layer is available in five different grits for different metals. (Bay State Abrasive Products Co.)

For more data circle No. 80 on postcard, p. 129

Spark-Protected Truck

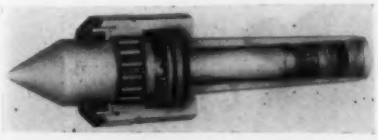
A battery-powered, stand-up, end-control truck can now be furnished with Underwriters' Type EE spark-protected label. Available in capacities of 1500 to 3000 lb, it has all switches, controllers, and

contactors enclosed in a steel case. Other safety features are overhead canopy, flashing red light, and adjustable spotlight. (Automatic Transportation Co. Div. of The Yale & Towne Mfg. Co.)

For more data circle No. 81 on postcard, p. 129

Live Center

A high-precision live center has a triple bearing design which fully supports the workpiece through the entire length of shank. It has two

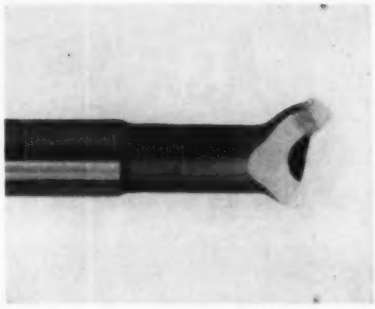


adjustable roller bearings and a large thrust bearing. Oil seals keep bearings clean. Spring-loading compensates for heat expansion from machining. It is available in stock from #1 to #6 M. T. and with large interchangeable-head bull centers. Each center is tested and guaranteed for concentricity to 80 millionths. (Webster Machine Products Co.)

For more data circle No. 82 on postcard, p. 129

Boring Bits and Bars

Increased cutting feeds, longer tool life, and finer surface finish are possible with a new form-relief line of boring cutters, both high-



speed steel and carbide-tipped. They feature a spiral relief design

Accurate
Efficient
Dependable

L&J

SINGLE CRANK
STRAIGHT SIDE
PRESS

STANDARD EQUIPMENT
Air clutch and brake. JIC controls plus dual air valve. Four square type gibs with bronze surfaced ways on ram. Hard bronze crankshaft bushings and ball seat. Ram counterbalances. Forced lubrication, etc.

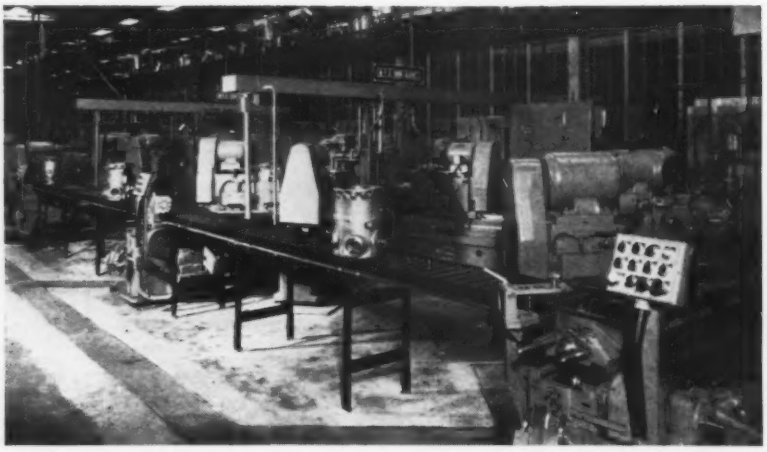
- 150 ton capacity adaptable for a wide range of jobs.
- Plain flywheel or back geared type.
- 6½" dia. main bearings, 9" dia. crank pin.
- Dimensions of bed and ram face, stroke length and shut height available as required.
- Extra heavy box type steel weldment tie rod construction.
- Rigid and accurate for precision work and long die life.

Write — Bulletin L-18 on 20 to 150 ton single and double crank straight side presses . . . also, 30 to 75 ton double crank gap frame presses.

L&J PRESS CORPORATION 1623 STERLING AVE. ELKHART, IND.

Ask Standard

how to cut costs with conveyors



Standard gravity roller conveyors like this are modest in cost, easy to install and maintain.

Conveyor system helps Airtemp up compressor parts production 40%

To handle stepped-up demands for residential and industrial air conditioners, the Airtemp Division of the Chrysler Corporation undertook an extensive re-tooling program. On one compressor crankcase line, for example, they installed 17 new machine tools . . . connected them all with Standard gravity roller conveyors. Result — two hours saving per case, production up 40%.

If you're planning on modernizing or retooling it will pay you, too, to find out how Standard conveyors can complement new equipment . . . give you lower overall costs and greater productive efficiency. STANDARD CONVEYOR COMPANY, North St. Paul 9, Minnesota. Sales and Service in Principal cities.

To expedite shipping or stocking and reduce handling costs, investigate Standard lightweight portable roller conveyors (right) or the portable, self-powered HANDIBELT conveyor (left), which can be used horizontally or at varying incline or decline angles.

For details — contact the Standard representative listed in the classified phone book or write direct. Ask for Bulletin M-5.

Standard

OVER 50 years of conveyor experience

GRAVITY & POWER CONVEYORS

NEW EQUIPMENT

that makes the chip curl and break up, flushing out along the shank of the tool. Fine surface finish and uniformity result. A complete range of sizes is available. (Maxwell Industries, Inc.)

For more data circle No. 83 on postcard, p. 129

Split-Drum Sander

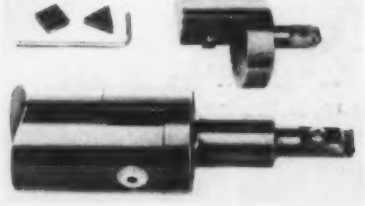
The split-drum sander is a cost-cutting abrasive wheel for metal removal, buffing, and polishing operations. It uses ordinary strips

of abrasives in place of more costly endless abrasive belts. Diameters from 3 to 12 in. are available, in widths of 1 to 4 in. (Hargreaves Industrial.)

For more data circle No. 84 on postcard, p. 129

Boring Bar

A micro-adjustable boring bar carries interchangeable heads for boring holes ½ to 1½ in. in diam. The bars are stocked partially finished, and the heads are finished to



required lengths for specific uses. Interchangeable heads can be completed for either triangular or square carbide inserts. (Wesson Co.)

For more data circle No. 85 on postcard, p. 129

Deep-Hole Drill Unit

A drill unit has been specially engineered for continuous high-

Formed steel bridge rails

WE HAVE STEEL AND PRESSES --- for making these sections in lengths up to 20'..... steel up to ½" thick!

MAY WE BID ON YOUR REQUIREMENTS

HARRISON SHEET STEEL CO.
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"EVERYTHING HINGES ON HAGER!"®

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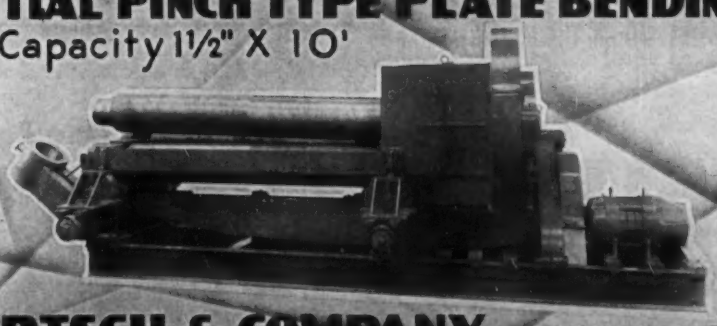
BRIGHT and HEAT TREATED
CAP SCREWS
AS WELL AS
PRECISION
MILLED-FROM-THE-BAR
CAP SCREWS • SET SCREWS • COUPLING BOLTS and STUDS
ARE PRODUCED BY
Wm. H. Ottemiller Co. YORK PENNA
Precision Milled Specials? Or Cut-of? We'll be glad to quote on yours promptly

INITIAL PINCH TYPE PLATE BENDING ROLL

Capacity 1½" X 10'



Our Line
Light and heavy machinery for all classes of sheet metal, plate and structural work.

BERTSCH & COMPANY, CAMBRIDGE CITY • INDIANA

Four "Bonus Values" Add to the Safety of Acco X-Weld Chain Slings!

• For certain types of lifts, there is one and only one product to use for maximum safety and efficiency... chain! But why only chain? Because chain offers qualities of tensile strength and flexibility not found in any other material. The next time you are confronted with an extra-heavy lifting problem, don't take a chance with a makeshift sling *that may not do the job!* Be sure... with ACCO *Registered* Sling Chains! Only with ACCO *Registered* Sling Chains do you get these four "bonus values" which add materially to the worth, but not the cost, of the sling...

1. **Accoloy X-Weld Chain** for extra strength. X-weld hangs straight... cannot kink... has extra resistance to bending
2. **New Shaped Master Link** is designed to withstand deformation under loads up to 18% greater than round section link
3. **Acco Registration Ring** is serially numbered as evidence that the sling has been proof-tested at twice its working load limit
4. **Registration Certificate** signed by American Chain & Cable Company attests to the field-design of the complete sling

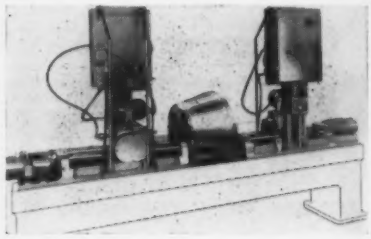
Only ACCO *Registered* Sling Chains, with Magnafluxed-tested hooks, give you premium quality features at regular prices. Find out about them from your nearby ACCO *Registered* Sling Chain Distributor or write us at York, Pa., for full details.

ACCO Registered
CHAIN SLINGS

American Chain Division • American Chain & Cable Company, Inc.
Bridgeport, Conn. • Factories: *York and *Braddock, Pa.
Sales Offices: *Atlanta, Boston, *Chicago, *Denver, Detroit, *Houston, *Los Angeles, New York, Philadelphia, Pittsburgh, *Portland, Ore., *San Francisco
*Indicates Warehouse Stock

ACCO

accuracy deep-hole drilling of holes of 3/32- to ⅝-in. diam. Its principal feature is positive synchronization of spindle speeds with feeds at all times, accomplished by a gear-and-worm arrangement between spindle and feed which can



be adjusted by pickoff gears. It can drill up to 24-in. depths. It is powered by a 3600-rpm Dynabrake motor and accommodates a ¾-in. Pratt & Whitney gun drill shank. (20th Century Machine Co.)

For more data circle No. 86 on postcard, p. 129

30-Ton Fork-Lift Truck

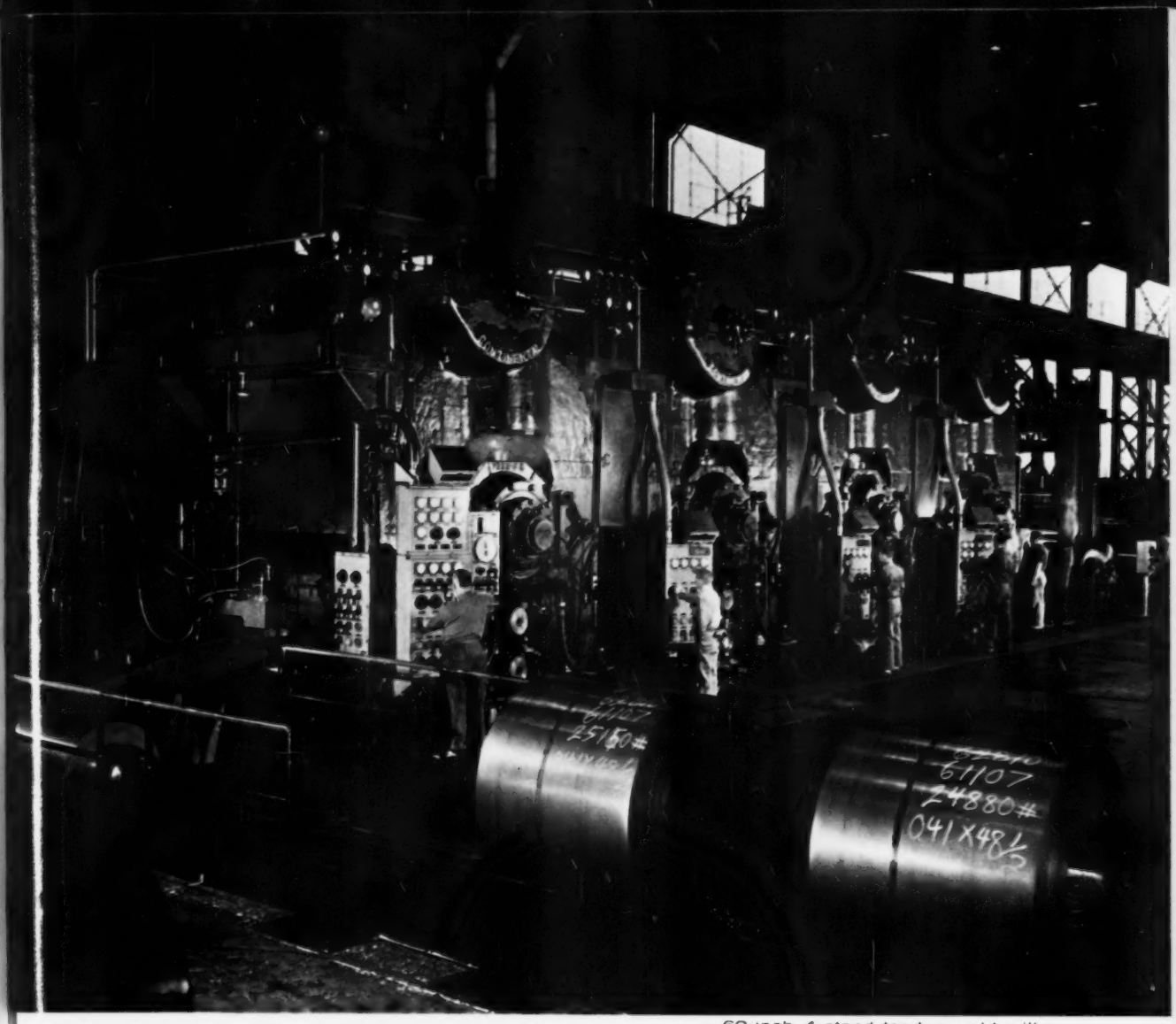
To be shown at the MHI Exposition, this is one of the largest forklift trucks made in America. It has fluid drive, power steering, au-

tomatic safety features, and a 30-ton capacity. Capacities of 25 and 20 tons are also available. (Silent Hoist & Crane Co., Inc.)

For more data circle No. 87 on postcard, p. 129

Finishes in One Pass

Designed for fast production of large holes in thick plate to close tolerances and with excellent finish, a new tool drills and finishes with a single quill stroke of the machine. It is a bar holding a replaceable spade drill and an ad-



60-inch, 4-stand tandem cold mill

BLAW-KNOX COLD STRIP MILLS

Blaw-Knox designs and builds all types of cold reduction and temper mills for ferrous and non-ferrous work. Other Blaw-Knox equipment for the metals industry includes complete rolling mill installations including all auxiliary equipment for ferrous and non-ferrous metals, iron, alloy iron and steel rolls, Medart cold finishing equipment, carbon and alloy steel castings, fabricated steel plate or cast-weld design weldments, steel plant equipment, and heat and corrosion resisting alloy castings.

BLAW-KNOX

BLAW-KNOX COMPANY

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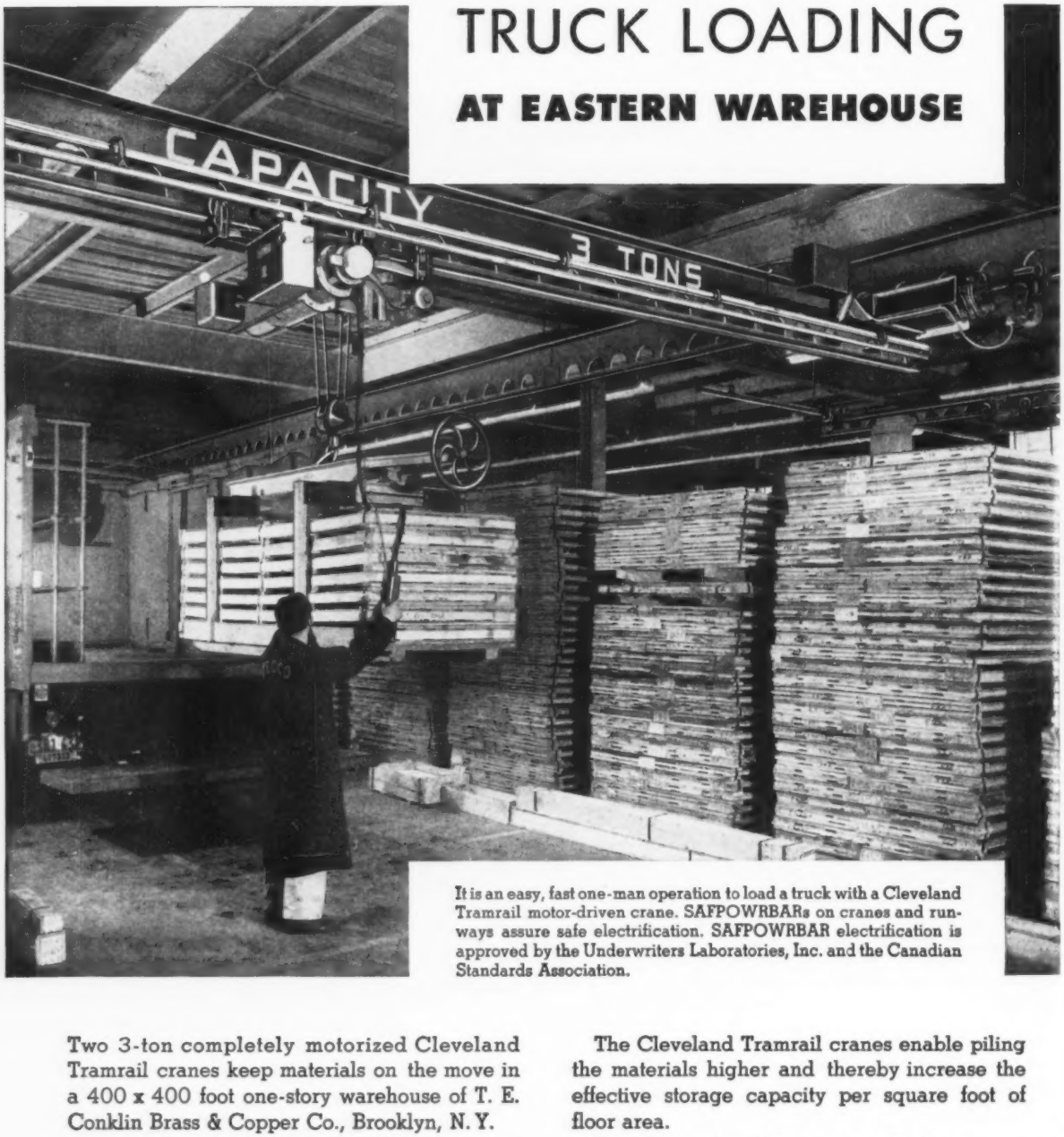
TRAMRAIL CRANES SPEED TRUCK LOADING AT EASTERN WAREHOUSE



It is an easy, fast one-man operation to load a truck with a Cleveland Tramrail motor-driven crane. SAFPOWRBARs on cranes and runways assure safe electrification. SAFPOWRBAR electrification is approved by the Underwriters Laboratories, Inc. and the Canadian Standards Association.

Two 3-ton completely motorized Cleveland Tramrail cranes keep materials on the move in a 400 x 400 foot one-story warehouse of T. E. Conklin Brass & Copper Co., Brooklyn, N. Y.

Two aisleways extending from front to rear of the building allow trucks to pass through. This arrangement permits loading and unloading the trucks close to the storage space and eliminates considerable handling. Another desirable feature is that the Tramrail cranes are high enough to clear over the trucks. This allows the loading of two trucks in each aisleway simultaneously without any interference of one with the other.

The Cleveland Tramrail cranes enable piling the materials higher and thereby increase the effective storage capacity per square foot of floor area.

Conklin stocks 3000 items, which are supplied to users throughout the New York area.

Write for free Engineering and Application Booklet No. 2008. Packed with valuable information.

CLEVELAND TRAMRAIL

Overhead Materials Handling Equipment

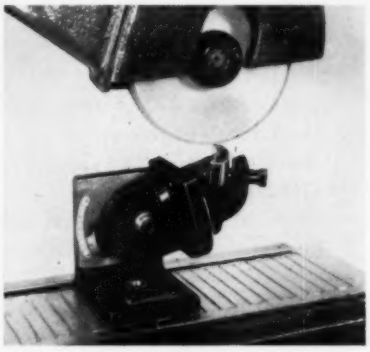
CLEVELAND TRAMRAIL DIVISION • THE CLEVELAND CRANE & ENGINEERING CO. • 4846 E. 290 ST. • WICKLIFFE, OHIO

justable cutter for reaming the hole to size. The cutter has a lateral "float" which permits it to center itself to the hole for smooth, chatterfree finishing. The tool is custom-made for specific applications. (Robert H. Clark Co.)

For more data circle No. 88 on postcard, p. 129

Gun-Drill Sharpener

A gun-drill sharpening fixture greatly reduces troubles and time involved in resharpening. Setup is fast and accurate, and exact point

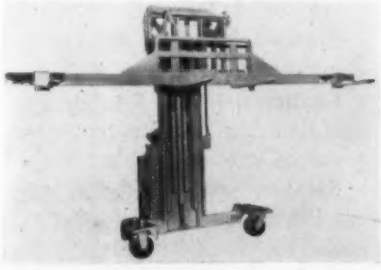


and relief angles are insured. By simple adjustment, point angles from 0° to 45°, and relief angles up to 20°, can be obtained. (National Twist Drill and Tool Co.)

For more data circle No. 89 on postcard, p. 129

Long-Load Fork

A fork-truck carriage extension for use with narrow-aisle trucks will permit faster and safer handling of loads of long, springy items like strip stock, small tubing, light bar stock, etc. The stabilizing end forks



are adjustable out to 15 ft. This carriage hooks on the standard fork carriage. At destination, the truck moves sideways with its load into an aisle as narrow as 7 ft. (The Raymond Corp.)

For more data circle No. 90 on postcard, p. 129

For smoother, easier drawing and forming

ask Oakite

OVER 50 YEARS CLEANING EXPERIENCE • OVER 250 SERVICE MEN • OVER 160 MATERIALS

Oakite DRAW CLEAN "M" cuts forming rejects, lengthens tool and die life, washes off fast

New Oakite Draw Clean "M" lubricant smoothes the way for lower reject rates on drawing and forming steel, aluminum, copper and brass. How? Draw Clean "M" clings to metal with such tenacity that pressures of 40 thousand psi cannot wipe it off. Even the thinnest film will prevent seizure that causes build-up, galling and scratching.

The components of Draw Clean "M" are soluble and, at annealing temperatures volatile. This is important to you because while it clings where most other compounds wipe away—it can be removed easily in a mild detergent solution. Yet the residue, if allowed to remain, is not harmful to metal or man.

By diluting with water in ratios as high as 1 to 9 Oakite Draw Clean "M" offers astonishing per-unit cost savings. It extends die life three times the previous experience. Miscible with both water and oil it may be adapted to any of the following:

light stamping	stretch forming	spinning
deep drawing	tube bending	punching
cold heading	tapping	wet grinding

Ask your Oakite man for bulletin F-10393 or write Oakite Products, Inc., 26H Rector Street, New York 6, N. Y.

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Profit from Yoder's years of engineering and service experience. Send today for the illustrated Yoder Slitter Book.

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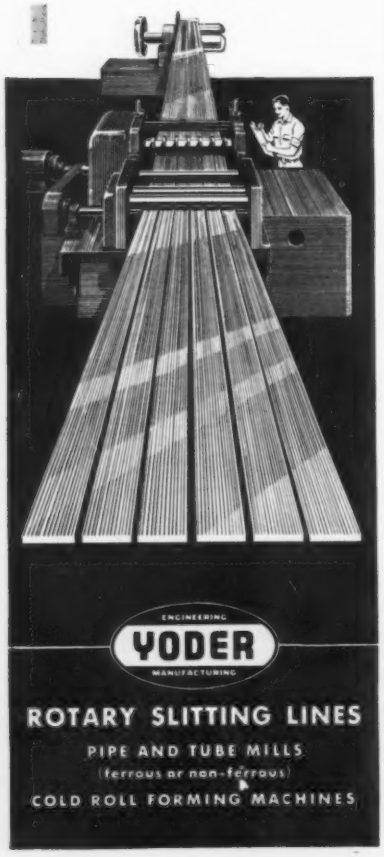
5510 Walworth Ave., Cleveland 2, Ohio



Material Handlers Meet in Cleveland

▪ The Material Handling Institute, Inc., will stage its triennial Exposition in the Cleveland Public Auditorium from June 9 through 12. Equipment representing the newest developments in industrial material handling will be displayed. About 30,000 industrialists from America and overseas are expected to attend.

Concurrent Technical Sessions, which will be repeated each day so that no one will miss out, will present new concepts in the material-handling art. These sessions will be presented with the cooperation of the Society for Advancement of Management and The American Society of Mechanical Engineers.

The program follows:

1959 MATERIAL HANDLING TECHNICAL SESSIONS

Tuesday, June 9

MANAGEMENT

Sponsor: Society for Advancement of Management.

Chairmen: Warren King, Factory Magazine; Roy Rix, Cleveland Electric Illuminating Co.

Speaker: Fred E. Harrell, Curtiss-Wright Corp.—**How to Sell Me on Material Handling.**

Panel: Charles A. Thomas, Standard Pressed Steel Co.—**The Type of Individual Best Suited to Carry Out Material Handling and Packaging Activities.**—Jonathan L. Collens, Reliance Electric and Engineering Co.—**What Should the Material Handling Man Know About Business Economics.**—Roland W. Puder, E. I. du Pont de Nemours & Co.—**How Do You Pay for New Equipment—Lease, Rent, or Purchase?**

Wednesday, June 10

ENGINEERING

Sponsor: The American Society of Mechanical Engineers.

Chairman: A. T. Gaudreau, Gaud-Reau Associates.

Panel: M. S. Michel, Pittsburgh & Lake Erie R. R.—**Mechanized Freight Handling at Railroad Terminals.** — Foster Weldon, Matson Navigation Co.—**Some System Design Considerations in Containerizing Ships' Cargoes.**

Chairman: Prof. Byron Saunders, Cornell University.

Panel: John Moskowitz and William O'Grady, Philadelphia Electric Co.—**Coal Handling Facilities at a Power Generating Station.**—George E. Waldron, Carling Brewing Co.—**An Engineered Case Handling System in a Modernized Brewery.**

Thursday, June 11

APPLICATION TECHNIQUES

Sponsor: American Material Handling Society, Inc.

Chairmen: Joseph F. Carle, Lincoln Extension Institute, Inc.; Ralph Riener, Cleveland Builders Supply.

Speaker: Norman Schaffer, Western Electric Co.—**How to Get Personnel to Accept New Ideas in Material Handling.**

Panel: Myron Miller, Westinghouse Electric Corp.—**Safety Training for Material Handling Personnel.** — Jack Vander Molen, Crane Co.—**How Can Material Handling Solve Production Prob-**

lems. — Thomas Wharton, Container Laboratories, Inc.—**What the Material Handling Engineer Should Know About Packaging.**

MATERIAL HANDLING EXHIBITORS

EXHIBITOR	BOOTH
Acme Steel Co.	1415
Albion Industries, Inc.	420
Alden Systems Co.	2134, 2136
Algene Marking Equipment Co.	1906
The Allen Iron & Steel Co.	1823
Allis-Chalmers Mfg. Co., Buda Div.	1010
American Chain & Cable Co., Inc.	910
American Dock Bridge, Inc.	1833, 1835
American Metal Products Co.	1932
American Monorail Co.	1409
The American Pulley Co.	1137
Anchor Coupling Co., Inc.	402
Anchor Steel and Conveyor Co.	121
Apex Welding & Fabricating Corp.	1921
Armed Forces	1830, 1832, 1834, 1836
Atlas Crane Co.	1933, 1935
Austin-Western Works	1509
Automatic Transportation Co.	1001, 600, 707
Baker Industrial Trucks	1504
Ballinger-Meserole Co.	A-1013
Barrett-Cravens Co.	A-1004
The Bassick Co.	202
Beacon Machinery, Inc.	2137
Beam Products Mfg. Co.	1829
Bearcat Tire Co	A-1022
Benton Harbor Engineering Works, Inc.	1104
Berg-Gibson Mfg. Co.	103
Bond Foundry & Machine Co.	434
Bosworth Mfg. Co.	2126
Brainard Steel Div. The Sharon Steel Corp.	2209
Broderick & Bascom Rope Co.	1908
Brooks & Perkins, Inc.	1936, 1938
H. L. Bushman Co., Inc.	117
The E. W. Buschman Co.	1050
C & D Batteries, Inc.	1200
C.I.T. Corp.	1512
Cascade Mfg. Co.	1061
Chain Belt Co.	1813
Chicago Tramrail Corp.	1926
Chilton Co.	305
Chisholm-Moore Hoist Div., Columbus McKinnon Chain Corp.	1922
Clark Door Co., Inc.	1931
Clark Equipment Co.	900, 901, 1106, 1300, 1610
Clarke Floor Machine Co.	2033
The Cleveland Crane & Engineering Co.	100
Clinch-Tite Corp.	2204
Coles Cranes, Inc	1501, 1606
The Colson Corp.	210
Conco Engineering Works	1913
Continental Motors Corp.	1511
Conveyor Div., Columbus McKinnon Chain Corp.	2125
Crescent Metal Products, Inc.	1316
Crown Controls Co., Inc.	1816
Cushman Motors	2016
Dearborn Fabricating & Engineering	2131, 2133
Dempster Brothers, Inc.	1400
Doerr Electric Corp.	2300
Drott Mfg. Co.	1602
Duff-Norton Co., Jack Div.	2038
Duff-Norton Co. Coffing-Hoist Div.	2042
Economy Engineering Co.	2208
Thomas A. Edison Industries Storage Battery Div.	507
Equipment Mfg., Inc.	2022
Equipto Div., of Aurora Equipment Co.	2121
Exide Industrial Div. The Electric Storage Battery Co.	902
The Elwell-Parker Electric Co.	1000
Ensign Carburetor Co.	1920
Erickson Power Lift Trucks, Inc.	R-1500
Essco Products Co.	221

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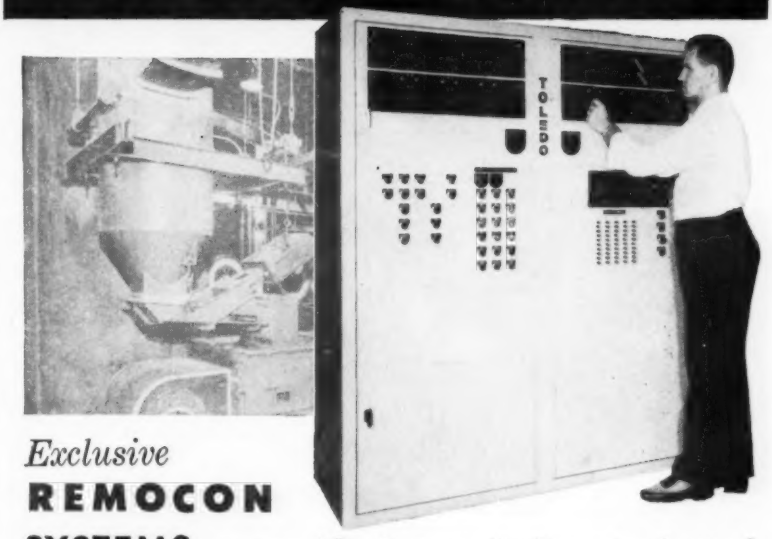

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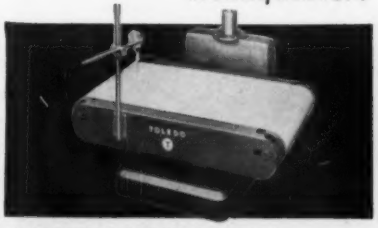

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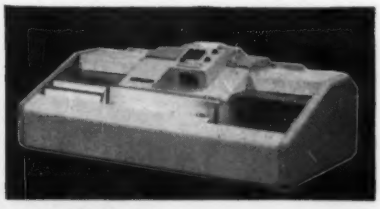

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Job report courtesy of
Superior Welding Company, Decatur, Ill.

How to get maximum corrosion resistance from Welded Stainless Steels

WELD WITH ARCOS

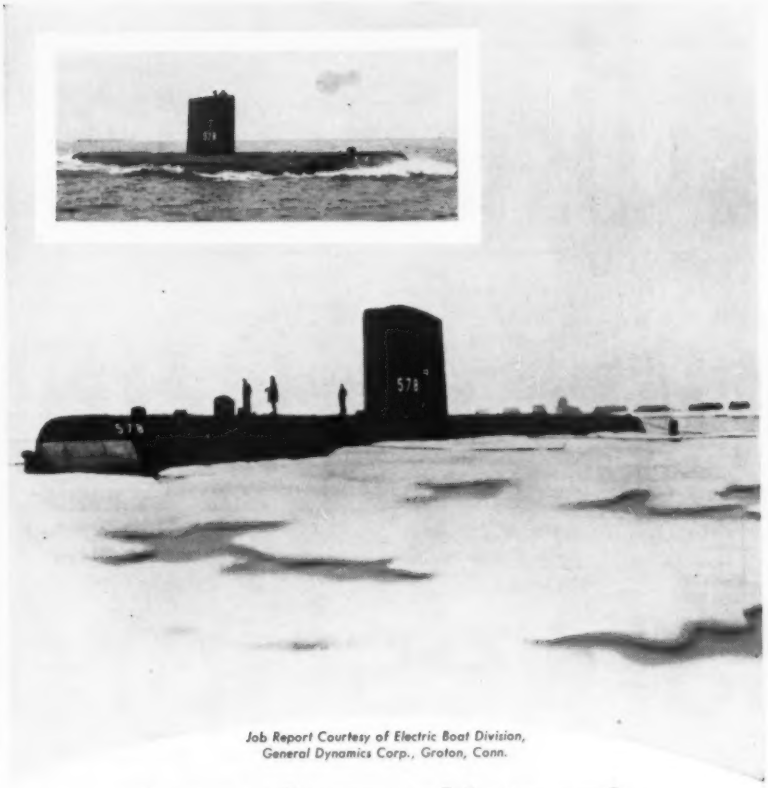
STAINLESS ELECTRODES

This reactor type vessel is used by the chemical industry to produce paints and resins. Effective resistance to corrosion depends largely upon the quality of its welded joints. Arcos CHROMEND HCN and CHROMEND K-LC Electrodes were selected to meet these critical demands. The inner vessel is 304 ELC clad carbon steel—all other parts in contact with the charge are also 304 ELC. Whatever *your* job, there's an Arcos Stainless weld metal of the right analysis for dependable results. ARCOS CORPORATION, 1500 South 50th Street, Philadelphia 43, Pa.

EXHIBITORS

EXHIBITOR	BOOTH
Essex Conveyors	1916
The Euclid Crane & Hoist Co.	101
Euclid Div. General Motors Corp.	1809
Evans Products Co.	A-1024
The Fairbanks Co.	2107
Faultless Caster Corp.	116
Foote Bros. Gear and Machine Corp.	2025
Frommelt Industries	1812
Gascoignes Industries, Inc.	2127
General Box Co.	1937, 1939
General Electric Co.	404
Globe Hoist Co.	2041
Bernard Gloekler North East Co.	1525
Goodyear Tire & Rubber Co.	2138
Gould-National Batteries, Inc.	1421
Greer Hydraulics, Inc.	2308
Grove Mfg. Co	1607
Harnischfeger Corp.	1136
Hartman Metal Fabricators, Inc.	804
Heifred Co.	1820
Hercules Motors Corp.	1519
Hertner Electric Co.	501
Hettrick Mfg. Co.	2028
Hinchcliff Hardwood Lumber Co.	1003
Hoover Ball & Bearing Co.	1927
The Howe Scale Co.	1837, 1839
Hughes-Keenan Div., U. S. Air Conditioning Corp.	1062
Hydreco Div. The New York Air Brake Co.	1124
Hyster Co.	1601, 1402, 1022
Hytrol Conveyor Co., Inc.	2117
Ingersol Kalamazoo Div. Borg-Warner Corp.	1412
Insul-8-Corp.	801
Ironbound Box & Lumber Co., Inc.	1940
Island Equipment Corp.	1423
Jarvis & Jarvis, Inc.	416
Joy Mfg. Co.	1305
The Joyce-Cridland Co.	1928
K. W. Battery Co., Inc.	1306
Kalamazoo Mfg. Co.	1032
Kelley Co., Inc.	1011
The Knickerbocker Co.	1431
Koehring Div., Div. of Koehring Co.	1401
LaMarche Mfg. Co.	431
Lamson Mobilift Corp.	R-1504
F. H. Langsenkamp Co.	1824
Lansing Co.	2026
Lathrop-Paulson Co.	1135
G. B. Lewis Co.	218, 225
Lewis-Shepard Products, Inc.	1304, 200
Lift Trucks, Inc.	105
Link-Belt Co.	1502
Little Giant Products, Inc.	316
F. J. Littell Machine Co.	2111
Logan Co.	306
Loomis Machine Co.	505
The Louden Machinery Co.	300
Lynch Corp.	2116
M-B Corp.	2307
MacWhyte Co.	2008
Magline, Inc.	1052
Magnesium Co. of America	2027
Magnesium Service Co.	2138
Manning, Maxwell & Moore, Inc.	1056
Mansaver Industries	206
Martin-Decker Corp.	1060
Martin Engineering Co.	1828
Marsh Stencil Machine Co.	808
Massey-Ferguson Industrial Div.	1841
Mathews Conveyor Co.	1917
May-Fran Engineering, Inc.	212
Mechanical Handling Systems, Inc.	300
The Mercury Mfg. Co.	1220
Metropolitan Wire Goods Corp.	2034
Molded Fiber Glass Tray Co.	113
Morse Chain Co.	R-1501
Motor Generator Corp.	2108
MOTOROLA, Communications & Electronics, Inc.	220
The Moto-Truc Co.	130, 131, 120
Chester Hoist Div., The National Screw & Mfg. Co.	430
National Vulcanized Fibre Co.	1912

EXHIBITOR	BOOTH
National Wooden Pallet Mfrs. Assn.	319
Nestler Corp.	2012
Nutting Truck & Caster Co.	1036
The Ohio Galvanizing & Mfg. Co.	129
Orangeville Mfg. Co.	1838
Oxy-Catalyst, Inc.	A-1010
The Paltier Corp.	1058
Parker-Hannifin Corp.	1510
Parker Sweeper Co.	1819
The Powell Pressed Steel Co.	706
The Prime Mover Co.	2036
R & K Industrial Products, Co., Inc.	2031
Rack Engineering Co.	A-1005
Rack Manufacturing Institute	2112
The Rapid-Standard Co., Inc.	1508, 119
The Raymond Corp.	1515
The Ready-Power Co.	1134
Republic Steel Corp., Berger Div.	702
Revolvator Co.	1516
Richards-Wilcox Mfg. Co.	1414
Robbins & Myers, Inc.	1405
Rotary Lift Co.	800
Rowe Methods, Inc.	2009
Ruger Equipment, Inc.	128
J. C. Schmidt, Inc.	1933, 1935
SI Handling Systems, Inc.	1817
Sage Equipment Company, Inc.	1329
Saginaw Products Corp.	2030
The Service Recorder Co.	2306
Signode Steel Strapping Co.	A-1015
Silent Hoist & Crane Co., Inc.	1040
Southworth Machine Co.	2303
Spaulding Fibre Co.	1312
Springport Steel Products Co.	1102
Stackbin Corp.	A-1018
Standard Conveyor Co.	1941
Stanley Steel Strapping Div., The Stanley Works	1330
Stewart-Warner Co., Alemite Div.	2007
Stokvis Edera & Co., Inc.	2304
Storage Products Corp.	1135
Streater Dependable Mfg. Co., Inc.	A-1502
Task Master, Inc.	2130
T & S Equipment Co.	2310
G. H. Tennant Co.	1433
Tier-Rack Corp.	2309
Toledo Scale Div. of Toledo Scale Corp.	2037
Tote Systems, Inc.	1514
Towmotor Corp.	1302, 1404, 1307
Tremplo Mfg., Inc.	1826
Triax Equipment	101
Tri State Engineering Co. Cargotainer Div.	1217
Tube-Strut Corp.	700
The Union Metal Mfg. Co.	1130
Union Asbestos and Rubber Co.	1605
United States Steel Corp.	2202
Union Steel Products Co.	500
Unistrut Products Co.	A-1020
United Shoe Machinery Corp.	204
United States Steel Supply Div. United States Steel Corp.	2200
Universal Hoist Co.	2206
Vac-U-Lift, Inc.	A-1017
Vanguard Engineering Co.	2021
Vickers, Inc.	1427
John Waldron Corp.	121
Warehouse Storage Systems, Div. of Hatfield Industries, Inc.	2140
H. S. Watson Co.	2120
Waukesha Motor Co.	1320
Wayne Mfg. Co.	222
The Wayne Pump Co.	1909
Jervis B. Webb Co.	1417
Weber Marking Systems, Div. of Weber Addressing Machine Co., Inc.	2013
West Bend Equipment Corp.	328
Westinghouse Electric Corp.	A-1000
Whiting Corp.	1500
Woodford Mfg. Co.	2024
The Yale & Towne Mfg. Co.	1110, 1408, 1115, 1603
Zenith Carburetor Div. Bendix Aviation Corp.	2114



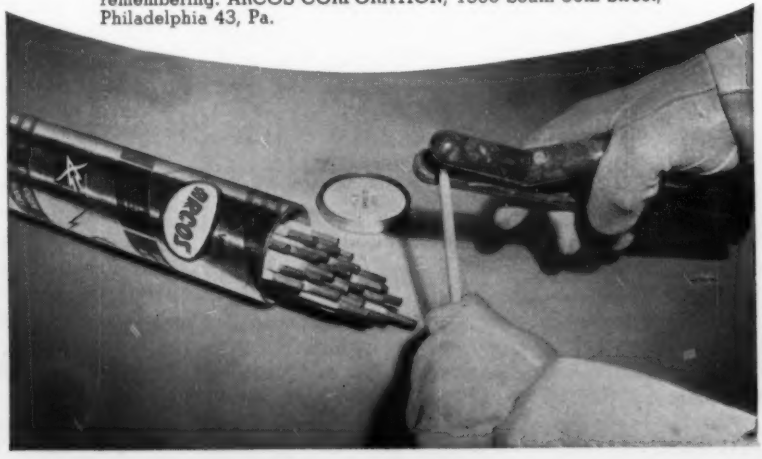
Job Report Courtesy of Electric Boat Division, General Dynamics Corp., Groton, Conn.

For maximum weld strength at sub-zero temperatures

WELD WITH ARCOS

LOW ALLOY ELECTRODES

The Skate (above), as well as the Nautilus, Seawolf, Swordfish, Skipjack and Triton are among the "greats" in America's atomic powered sub force carrying welds produced by ARCOS low alloy electrodes. ARCOS Tensilend 80, 100, 120 and Ductilend were used to assure welds of highest possible impact strength whether on missions in the tropics or the sub-zero arctic. When you need weld metals with similar qualities, ARCOS is well worth remembering. ARCOS CORPORATION, 1500 South 50th Street, Philadelphia 43, Pa.



Lukens is now the nation's 3rd largest producer of steel plate

PHASE "A" EXPANSION COMPLETED; NEW PLANT FACILITIES INCREASE CAPACITY, ESTABLISH A NEW HIGH IN PLATE QUALITY

Long the nation's leading specialist in steel plate, Lukens Steel Company is now geared to expanded volume production of its quality products. With Phase "A" completed, the company enters a new era in its nearly 150 years of service to industry. Lukens is now the country's third ranking steel plate producer. Major new facilities include:

A new, 100-ton-capacity electric furnace. With 12 existing open hearth furnaces, Lukens' annual capacity will be nearly one million ingot tons . . .

Twelve massive new ingot soaking pits, among the largest ever built, each capable of holding 200 tons. They're designed to heat record-size, 75-ton ingots to 2350 deg. F. for rolling into plate . . .

A new, 140-inch, 4-high automated slabbing mill to supplement other Lukens mills—which include the 206-inch giant that rolls the nation's widest and heaviest steel plate and the modern 120-inch mill. This new mill augments Lukens production of the widest range of plate sizes available anywhere.

What does this new expansion mean? First, its completion assures uninterrupted production of Lukens quality steels. Second, Lukens' customers can look forward to a growing supply of carbon and alloy steel plates, shapes, heads, weldments . . . renowned Lukens clad steels . . . Lukens "T-1" and "Nine Nickel" steels. And of utmost importance, Lukens is now better equipped than at any time in its long history to pursue the course that has done so much to bring about its continuing growth—*serving industry with steels that fit the job.*

LUKENS

Lukens Steel Company, Coatesville, Pennsylvania.

SERVING INDUSTRY WITH A WIDE RANGE OF SPECIALTY CARBON, ALLOY, ARMOR AND CLAD STEEL PLATES • HEADS • PLATE SHAPES • PLATE-MATE WELDING ELECTRODES AND WIRE

The Iron Age Summary

News Blackout Cloaks Trouble

Atmosphere in steel labor negotiating room is bitter. Both sides are adamant.

Steel industry threatens to make demands of its own if union refuses to come into line.

▪ The steel labor negotiations news blackout at New York has cloaked the widest gap between management and labor in recent negotiating history. It grows more bitter despite smiles for the benefit of the press.

Steel negotiators are putting the blocks to David J. McDonald, steel labor chief. The union, in turn, is threatening to use a divide-and-conquer strategy against the steel industry.

A Bombshell—The steel management group has dropped a bombshell in Mr. McDonald's lap. It has argued that if he does not accept a wage freeze and existing contracts run out on June 30 without a new pact, steel companies will demand important changes in the current agreements.

This blast has stunned the labor side as much as the steel workers' divide-and-conquer threat shook the management side.

Squeeze Play—Under the guise of protecting the economy by striking only one or two steel firms, Dave McDonald could force the other steel companies to fish or cut bait. Either they would have to shut down, or operate under a "mutual assistance" arrangement. If the unstruck plants shut down, it is almost certain that their employees would get state unemployment compensation benefits. Thus by a divide-and-conquer scheme Dave McDonald could subsidize a strike and reduce the pay loss. He could also get more time to apply the screws for a good settlement.

Both the union and the steel companies are debating separately just what should be done and how each other's moves should be met. This is one reason why there has been a news blackout. There hasn't been much for either side to say. Another reason is that both sides have had their fill of public economic debate at press conferences.

Breakoff Is Possible — The atmosphere of the steel labor talks is so cold that a breakoff could come suddenly, although Mr. McDonald's staff is cautioning him against such a move. The solidarity of the steel side is reaching some kind of a new high.

Thus there is little chance of a settlement before June 30. A 6 to 8 week strike becomes more probable each week.

Market Pressure — Meanwhile, steel users are pressuring the mills for delivery. Steel sales departments are spending a lot of time just answering customers calls and running down the progress of orders. At the same time, orders for third quarter delivery are coming in strong—stronger than had been expected. The feeling is they represent less "protection" tonnage against a strike and more actual need.

Steel Output, Operating Rates

Production	This Week	Last Week	Month Ago	Year Ago
(Net tons, 000 omitted)	2,675	2,646	2,689	1,567
Ingot Index				
(1947-1949=100)	166.6	164.7	167.4	97.5
Operating Rates				
Chicago	94.0	93.0	94.0	66.5
Pittsburgh	95.5	95.0*	96.5	55.0
Philadelphia	94.0	94.0*	96.5	59.5
Valley	87.0	86.5*	87.0	40.5
West	93.0	95.5*	92.0	80.0
Cleveland	97.0	93.0*	95.0	35.0
Detroit	98.0	99.0*	99.0	55.0
Buffalo	107.0	107.0	105.0	49.0
South Ohio River	94.0	96.0*	102.0	56.0
South	95.0	96.0	94.0	67.0
Upper Ohio River	95.5	93.0*	93.0	80.0
St. Louis	95.0	90.0*	98.0	88.0
Aggregate	94.5	93.5	95.0	58.1

*Revised

Prices At a Glance

(Cents per lb unless otherwise noted)	This Week	Week Ago	Month Ago	Year Ago
Composite price				
Finished Steel, base	6.196	6.196	6.196	5.967
Pig Iron (gross ton)	$66.41	$66.41	$66.41	$66.49
Scrap No. 1 hvy (Gross ton)	$35.83	$34.17	$33.83	$35.33
No. 2 bundles	$24.17	$23.50	$22.83	$26.17
Nonferrous				
Aluminum ingot	26.80	26.80	26.80	26.10
Copper, electrolytic	31.50	31.50	31.50	25.00
Lead, St. Louis	11.80	11.80	11.30	11.30
Magnesium	36.00	36.00	36.00	36.00
Nickel, electrolytic	74.00	74.00	74.00	74.00
Tin, Straits, N. Y.	103.625	103.25*	102.50	94.625
Zinc, E. St. Louis	11.00	11.00	11.00	10.00

Bearings Are in Heavy Demand

Right now bearings makers are operating at capacity levels to keep up with sales.

Demand may taper off slightly this summer. But a busy fourth quarter and a strong 1960 are predicted.

▪ Sales demand for bearings is keeping manufacturers busy. Many are operating at capacity levels.

"Business is almost too good," reports the Norma-Hoffman Bearings Corp. "We're running 100 pct of capacity, 6 days a week."

Another manufacturer echoes this view. "We're operating at full production with the largest backlogs in our history."

Who's Buying? — Orders for bearings are coming in from all types of industries. But demand is especially heavy from makers of appliances and electric motors. Builders of outboard motors are also in the market. Automotive buying is healthy, but not extraordinary.

Bearing purchases for defense equipment are also a good source of sales. Miniature Precision Bearings Co. has orders running through the next 8 to 12 months, many for missile and missile-support components. The company says military buyers are putting heavy emphasis on reliability, spotlighting the need for quality control in manufacturing.

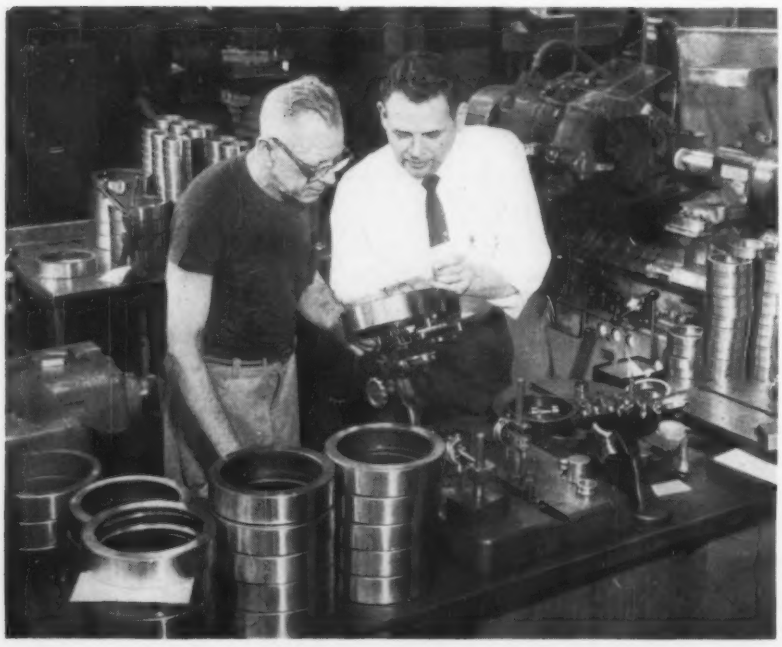
How Much Hedging? — How much of the buying is steel strike hedging? Answers vary, but producers agree a good portion is for current needs rather than stockpiling. Norma-Hoffman reports heavy orders running into the fourth quarter. The Torrington Co. expects a slight dip in the third quarter, but feels most of it will be seasonal. Another manufacturer comments: "We look for a flattening out in sales during the summer. But the last quarter and the whole of 1960 should be at good levels."

Ready for Strike—A steel strike would have little effect on bearings production. Manufacturers have been stocking up, expect to have 60 to 90 days' steel supply on hand by June 1.

Delivery Stretch-out—With sales volume high, delivery times are lengthening. Most producers still have room on order books through the summer. But many are now talking of fourth quarter delivery on some items. And if sales continue at present levels, still longer lead times seem likely.

Price Outlook—Right now prices are stable. A general price increase, averaging about 5 pct, went into effect in February and March. Bearings makers say this advance reflected previous cost increases, was delayed while the recession was on.

As for the future, they see no immediate price rises coming. But a lot depends on the labor contract negotiations this summer and next fall. Since material costs are a big factor in bearings manufacture, any steel price increases could trigger off bearing price boosts. In addition, pattern-setting wage increases in steel would probably also show up in higher labor costs for bearing makers.



EMPHASIS ON QUALITY: In-process quality control check at Norma-Hoffman Bearings Corp. reflects customer emphasis on bearing reliability. Gages are identical with those used in final inspection.

We cast *all* of these alloys . . . it will *pay you* to consult us

Aluminum Bronze *(all grades)*—Aluminum Manganese Bronze (HY-TEN-SL), 90,000 tensile to 120,000 tensile — Manganese Bronze — Nickel Manganese Bronze — Gun Metal — Phosphor Bronze—Valve Bronze—Nickel Bronze—Cupro Nickel — Silicon Bronze — Hydraulic Bronze — Bearing Bronzes — Red Brass, etc.

Note: Our new, flat opening, flexible-bound "Reference Book on Bronze Casting Alloys" has just come off the press—copy will be sent upon request on your Business Letterhead.

AMERICAN MANGANESE BRONZE COMPANY

4701 RHAWN ST., HOLMESBURG, PHILADELPHIA 36, PA.

Established 1909

Danny DoALL says:

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Call — your local DoALL Store for selection and immediate delivery.

SB-72¼

"Bridge" the cost gap with a NEW EUCLID TROLLEY on your PRESENT CRANE BRIDGE!

If your present overhead crane facilities require attention, it may be wise to investigate the possibilities of a crane remodeling job with new Euclid trolleys; available in a range of designs and capacities.

We can specifically cite instances where this plan has been employed to the complete satisfaction of the crane owners.

This Heavy Duty Series "M" trolley incorporates a three reduction spur gear hoist. Recommended for use on cranes subjected to continuous operation in the handling of heavier loads.

This submerged crane trolley is designed to meet the low headroom conditions which are more prevalent in existing low buildings today with the wide use of air conditioning in many industrial plants.

A Series "H" top running trolley with a worm gear drive used in double girder cranes in capacities of 3 to 15 tons.

REQUEST A SURVEY
of your present crane by a Qualified Euclid Representative without obligation write for the CRANE CATALOG

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THE EUCLID CRANE & HOIST CO. 1361 Chardon Rd. Cleveland 17, Ohio

Orders Assure Mills Busy 3rd Quarter

Customers are booking more tonnage for delivery after June than the mills expected.

Demand is greatest for sheet, strip, and plate.

▪ Buyers are putting a firm floor under third quarter steel operations. Their orders assure the mills a busier summer than expected—provided there's no strike.

These bookings beyond June are now reaching the steelmakers in good volume. And there's less mill worry that some of the tonnage is strictly a strike hedge. Mills are now convinced most orders are genuine and not likely to be deferred or cancelled.

Probably the strongest third quarter products are sheet and strip. Many sheet mills have July order books filled or nearly so. Some are receiving August and September tonnages. A few orders have even been placed for October delivery.

Plate is another product in good third quarter demand. Midwest plate mills should be busy all through the summer. Heavy backlogs are a factor, but new orders are also important.

On the East Coast, where plate carryovers are less critical, third quarter orders are encouraging mills. "So far our August and September plate bookings are running beyond the pace of former years," says an Eastern mill spokesman. "July tonnage is already gone."

Plates and Shapes—Carryovers on sheared mill plate are piling up. They vary from six weeks or more at **Chicago** to around two weeks at **Pittsburgh** and **East Coast** mills. In addition, defense priorities may squeeze some plate users off June schedules.

Mill backlogs are generally not as heavy for structurals. But deliveries of wide flange beams are running behind schedule. Wide flange orders for third quarter shipment are coming in at a good rate. At some **Midwest** mills there's more third quarter interest in structurals than in flat-rolled products.

Bar—Orders for the third quarter are coming in slowly. A **Pittsburgh** mill says order volume for July is good. However, that month is still not booked to capacity. **Eastern** mills are quoting hot-rolled bar for July shipment.

At **Chicago,** hot-rolled deliveries are about three weeks late. This is also creating problems for the cold finishers. Delays in getting bar stock and jam-ups at heat treat installations are the main reasons cold finished bar shipments are extending.

Wire Products — Imports of welded wire fabric are arriving in the **Cleveland** area for the first time. Generally this product is considered too bulky for ocean shipment or economic storage. In addition, the market for wire fabric is far from good at the moment. Domestic mills can usually make delivery right from stock. Nevertheless the overseas product is coming in.

Service Centers—Distributor inventories are declining as their mill suppliers fall behind on deliveries of sheet, strip, plate, and bars. The service centers are doing all they can to speed up these shipments, but without much success. Warehouse stocks by July 1 should be at an over-all level of just under 90 days. But already inventories in some sizes of coated sheet and plate are approaching the critical stage.

Service Center Pricing—Customers appear to like the net pricing system now used by **Boston, Pittsburgh,** and **Cleveland** distributors. (See story, p. 69.) Over 95 pct of the warehouse steel sold in **Pittsburgh** is now handled under this system, according to reports from buyers.

Delivery Promises at a Glance

	East	Pittsburgh	Cleveland	Detroit	Chicago	West Coast
CR Carbon Sheet	July	6–8 wks	Quota	Quota	7–10 wks	Quota
HR Carbon Sheet	July	5–7 wks	Quota	Quota	8–10 wks	14 wks
CR Carbon Strip	July	6–8 wks	Quota	Quota	8–10 wks	12 wks
HR Carbon Strip	July	5–7 wks	Quota	Quota	8–10 wks	12 wks
HR Carbon Bars	July	4–8 wks	Quota	Quota	8–12 wks	8 wks
CF Carbon Bars	6–8 wks	4–8 wks	6–8 wks	Quota	8–12 wks	5 wks
Heavy Plate	July	4–8 wks			12–16 wks	10 wks
Light Plate	July	4–8 wks	Quota		10–14 wks	10 wks
Merchant Wire	Stock	Stock	Stock		4–8 wks	4 wks
Oil Country Goods	July	4–8 wks	4–8 wks		12–16 wks	
Linepipe	July	4–8 wks	4–8 wks		12–16 wks	8–10 wks
Buttweld Pipe	2–4 wks	Stock	4–6 wks	Quota	8–10 wks	8 wks
Std. Structurals	4–5 wks	4–6 wks		Quota	8–10 wks	10 wks
CR Stainless Sheet	4–8 wks	4–8 wks	6–8 wks	Quota		
CR Stainless Strip	4–8 wks	4–8 wks	6–8 wks	Quota		

COMPARISON OF PRICES

Steel prices on this page are the average of various f.o.b. quotations of major producing areas: **Pittsburgh, Chicago, Gary, Cleveland** Youngstown.

Price advances over previous week are printed in **Heavy Type**; declines appear in *Italics*.

	May 26 1959	May 19 1959	Apr 28 1959	May 26 1958
Flat-Rolled Steel: (per pound)				
Hot-rolled sheets	5.10¢	5.10¢	5.10¢	4.925¢
Cold-rolled sheets	6.275	6.275	6.275	6.05
Galvanized sheets (10 ga.)	6.875	6.875	6.875	6.60
Hot-rolled strip	5.10	5.10	5.10	4.925
Cold-rolled strip	7.425	7.425	7.425	7.17
Plate	5.30	5.30	5.30	5.12
Plates, wrought iron	13.55	13.55	13.55	13.15
Stainl's C-R strip (No. 302)	52.00	52.00	52.00	52.00
Tin and Terneplate: (per base box)				
Tinplate (1.50 lb.) cokes	$10.65	$10.65	$10.65	$10.30
Tin plates, electro (0.50 lb.)	9.35	9.35	9.35	9.00
Special coated mfg. ternes	9.90	9.90	9.90	9.55
Bars and Shapes: (per pound)				
Merchant bar	5.675¢	5.675¢	5.675¢	5.425¢
Cold finished bar	7.65	7.65	7.65	7.30
Alloy bars	6.725	6.725	6.725	6.475
Structural shapes	5.50	5.50	5.50	5.275
Stainless bars (No. 302)	46.75	46.75	45.00	45.00
Wrought iron bars	14.90	14.90	14.90	14.45
Wire: (per pound)				
Bright wire	8.00¢	8.00¢	8.00¢	7.65¢
Rails: (per 100 lb.)				
Heavy rails	$5.75	$5.75	$5.75	$5.525
Light rails	6.725	6.725	6.725	6.50
Semifinished Steel: (per net ton)				
Rerolling billets	$80.00	$80.00	$80.00	$77.50
Slabs, rerolling	80.00	80.00	80.00	77.50
Forging billets	99.50	99.50	99.50	96.00
Alloys blooms, billets, slabs	119.00	119.00	119.00	114.00
Wire Rods and Skelp: (per pound)				
Wire rods	6.40¢	6.40¢	6.40¢	6.15¢
Skelp	5.05	5.05	5.05	4.875
Finished Steel Composite: (per pound)				
Base price	6.196¢	6.196¢	6.196¢	5.967¢

(Effective May 26, 1959)

	May 26 1959	May 19 1959	Apr. 28 1959	May 26 1958
Pig Iron: (per gross ton)				
Foundry, del'd Phila.	$70.57	$70.57	$70.57	$70.97
Foundry, Southern Cin'ti	73.87	73.87	73.87	73.87
Foundry, Birmingham	62.50	62.50	62.50	62.50
Foundry, Chicago	66.50	66.50	66.50	66.50
Basic, del'd Philadelphia	70.07	70.07	70.07	70.47
Basic, Valley furnace	66.00	66.00	66.00	66.00
Malleable, Chicago	66.50	66.50	66.50	66.50
Malleable, Valley	66.50	66.50	66.50	66.50
Ferromanganese, 74-76 pct Mn, cents per lb‡	12.25	12.25	12.25	12.25
Pig Iron Composite: (per gross ton)				
Pig iron	$66.41	$66.41	$66.41	$66.49
Scrap: (per gross ton)				
No. 1 steel, Pittsburgh	**$39.50**	$37.50	$35.50	$37.50
No. 1 steel, Phila. area	**35.50**	33.50	33.50	34.00
No. 1 steel, Chicago	**32.50**	31.50	32.50	34.50
No. 1 bundles, Detroit	31.50	31.50	29.50	26.50
Low phos., Youngstown	**40.00**	38.50	38.50	37.50
No. 1 mach'y cast, Pittsburgh	49.50	49.50	49.50	48.50
No. 1 mach'y cast, Phila.	49.50	49.50	49.50	47.50
No. 1 mach'y cast, Chicago	**55.50**	54.50	52.50	46.50
Steel Scrap Composite: (per gross ton)				
No. 1 hvy. melting scrap	**$35.83**	$34.17	$33.83	$35.33
No. 2 bundles	**24.17**	23.50	22.83	26.17
Coke, Connellsville: (per net ton at oven)				
Furnace coke, prompt	$14.50-15.50	$14.50-15.50	$14.50 15.50	$15.38
Foundry coke, prompt	18.50	18.50	18.50	17.50-19
Nonferrous Metals: (cents per pound to large buyers)				
Copper, electrolytic, Conn.	31.50	31.50	31.50	25.00
Copper, Lake, Conn.	31.50	31.50	31.50	25.00
Tin, Straits, N. Y.	**103.625†**	103.25*	102.50	94.625
Zinc, East St. Louis	11.00	11.00	11.00	10.00
Lead, St. Louis	11.80	11.80	11.30	11.30
Aluminum, virgin ingot	26.80	26.80	26.80	26.10
Nickel, electrolytic	74.00	74.00	74.00	74.00
Magnesium, ingot	36.00	36.00	36.00	36.00
Antimony, Laredo, Tex.	29.50	29.50	29.50	29.50

† Tentative. ‡ Average. * Revised.

Finished Steel Composite

Weighted index based on steel bars, shapes, plates, wire, rails, black pipe, hot and cold rolled sheets and strips.

Pig Iron Composite

Based on averages for basic iron at Valley furnaces and foundry iron at Chicago, Philadelphia, Buffalo and Birmingham.

Steel Scrap Composites

Average of No. 1 heavy melting steel scrap and No. 2 bundles delivered to consumers at Pittsburgh, Philadelphia and Chicago.

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Market Perks Up, Prices Rebound

Prospects of a busy few weeks before the strike deadline bring a spurt of strength to the market.

Prices in major districts are up $1 to $2.

■ Scrap prices turned upward with a vengeance this week.

After many weeks of sliding downhill while mill operating rates climbed higher, the scrap market hit bottom with a jolt. Almost immediately, prices of openhearth scrap in the major districts started to regain lost ground.

In Pittsburgh and Chicago, broker buying is being backed up by new mill purchase orders. In Philadelphia, new export business at higher prices is draining prime material from the area, forcing domestic prices up. In Cleveland and the Valley, higher prices for auto lists caused dealers to hold out on brokers' offers for material at quoted prices.

In the last few weeks, prices apparently dropped beyond the point where most dealers could restock their inventories. The outlook now is for a brisk business in June as mills get set to fill as many orders as they can before the probable steel strike deadline on June 30.

Based on increases in Pittsburgh, Chicago, and Philadelphia, The IRON AGE No. 1 heavy melting Composite Price rose $1.66 to $35.83.

Pittsburgh—Prices of openhearth grades moved up again this week as recent increases failed to produce the tonnages needed for old orders. No. 1 heavy melting jumped $2. No. 2 openhearth grades rose $1. The general strength moved up blast furnace, industrial, and railroad grades. Brokers say prices had dropped to the point where yard collections fell off and scrap was not flowing into the district. This condition has made it difficult to cover orders. At the same time, new mill interest in scrap is promoting optimism and tightening the market further.

Chicago — Brokers moved to cover outstanding orders during the week, which forced broker buying prices upward. At the same time, purchases by several mills confirmed a stronger tone in the market. No. 1 heavy melting steel moved at $33 and No. 1 factory bundles advanced on a new sale. Broker buying was particularly heavy in No. 2 heavy melting steel where the price advanced to $31.

Philadelphia — Price of No. 1 heavy melting is up $2 on basis of export buying. No. 2 heavy melting is up $1. Export during the past month has reduced the supply of good material in the district. While domestic mills haven't been buying in recent weeks, the shortage of prime scrap indicates a higher price is justified.

New York—Export continues to support the market, although no large export orders are in the wind at present. Prices are unchanged.

Detroit—Dealers and brokers are primed for an active June market. Industrial scrap is expected to spurt $1 to $2, with scrap to be moved in the first half of the month drawing the premium. Because their sources are drying up, dealers have raised their buying prices $1. Brokers, in turn, expect dealers to seek a $1-a-ton premium as an inducement to beat mid-month cut-off dates.

Cleveland—First auto lists went for about $42 delivered or about $3 over a month ago, indicating good demand for prime grades. Dealer grades are up $1 in sympathy. Some quick delivery orders may materialize in readiness for a steel strike. Yards are also preparing to lay down scrap for mills in event of a strike for $2-$3 a ton, in and out.

St. Louis — There is a general feeling of strength in this market, although most prices are unchanged. Dealers and brokers are reluctant to commit themselves to new orders. Railroad grades are up $1, stove plate up 50¢.

Birmingham — Some recent railroad lists indicate strength in the scrap market. But most activity was by brokers and not consumers. There were some spot sales at higher prices but not enough to establish a market. Prices are unchanged. Dealer intake continues slow and cast is becoming tight.

Cincinnati—Tone of the market is somewhat better but mills are still not reaching for scrap. Some good material is being turned down with mill and dealers only $1 apart. Up-river demand is stronger. Prices of openhearth scrap is up $1.

Buffalo — Market is quiet and prices unchanged. General feeling is that any new business will be at current prices.

Boston — Prices are unchanged. Movement of material is slow, but outlook is hopeful as mills show a spark of interest in scrap.

West Coast — Market tone is weak. There's serious talk of a $2 to $4 per ton drop in June. Export emphasis is shifting to Eastern and Gulf ports because of lower prices.

Houston — The market is still marking time since the district mill is out of the market. It is expected to stay out through June 15. Reports of possible export cargoes for Japan are generating a little enthusiasm among exporters.

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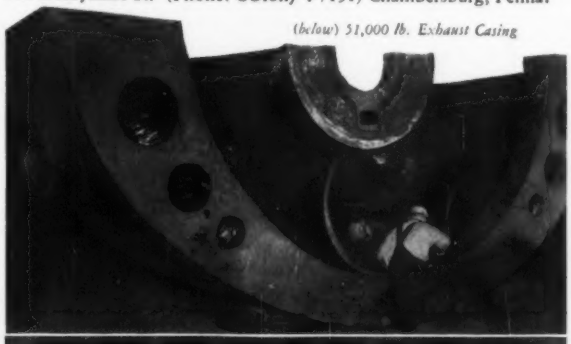

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SCRAP PRICES *(Effective May 26, 1959)*

Iron and Steel Scrap

Going prices of iron and steel scrap as obtained in the trade by THE IRON AGE based on representative tonnages. All prices are per gross ton delivered to consumer unless otherwise noted.

Pittsburgh

No. 1 hvy. melting	$39.00 to $40.00
No. 2 hvy. melting	31.00 to 32.00
No. 1 dealer bundles	40.00 to 41.00
No. 1 factory bundles	45.00 to 46.00
No. 2 bundles	28.00 to 29.00
No. 1 busheling	39.00 to 40.00
Machine shop turn.	20.00 to 21.00
Shoveling turnings	27.00 to 28.00
Cast iron borings	26.00 to 27.00
Low phos. punch'gs plate	45.00 to 46.00
Heavy turnings	32.00 to 33.00
No. 1 RR hvy. melting	42.00 to 43.00
Scrap rails, random lgth.	50.00 to 51.00
Rails 2 ft and under	55.00 to 56.00
RR specialties	48.00 to 49.00
No. 1 machinery cast.	49.00 to 50.00
Cupola cast.	43.00 to 44.00
Heavy breakable cast.	41.00 to 42.00
Stainless	
18-8 bundles and solids	230.00 to 235.00
18-8 turnings	115.00 to 120.00
430 bundles and solids	130.00 to 135.00
410 turnings	55.00 to 60.00

Chicago

No. 1 hvy. melting	$32.00 to $33.00
No. 2 hvy. melting	30.00 to 31.00
No. 1 dealer bundles	33.00 to 34.00
No. 1 factory bundles	39.00 to 40.00
No. 2 bundles	22.00 to 23.00
No. 1 busheling	32.00 to 33.00
Machine shop turn.	17.00 to 18.00
Mixed bor. and turn.	19.00 to 20.00
Shoveling turnings	19.00 to 20.00
Cast iron borings	19.00 to 20.00
Low phos. forge crops	46.00 to 47.00
Low phos. punch'gs plate, ¼ in. and heavier	43.00 to 44.00
Low phos. 2 ft and under	41.00 to 42.00
No. 1 RR hvy. melting	37.00 to 38.00
Scrap rails, random lgth.	44.00 to 45.00
Rerolling rails	56.00 to 57.00
Rails 2 ft and under	51.00 to 52.00
Angles and splice bars	47.00 to 48.00
RR steel car axles	63.00 to 64.00
RR couplers and knuckles	45.00 to 46.00
No. 1 machinery cast.	55.00 to 56.00
Cupola cast.	48.00 to 49.00
Cast iron wheels	39.00 to 40.00
Malleable	56.00 to 57.00
Stove plate	46.00 to 47.00
Steel car wheels	44.00 to 45.00
Stainless	
18-8 bundles and solids	210.00 to 215.00
18-8 turnings	110.00 to 115.00
430 bundles and solids	115.00 to 120.00
430 turnings	55.00 to 60.00

Philadelphia Area

No. 1 hvy. melting	$35.00 to $36.00
No. 2 hvy. melting	28.00 to 29.00
No. 1 dealer bundles	36.00 to 37.00
No. 2 bundles	21.00 to 22.00
No. 1 busheling	35.00 to 36.00
Machine shop turn.	19.00 to 20.00
Mixed bor. short turn.	19.00 to 20.00
Cast iron borings	19.00 to 20.00
Shoveling turnings	23.00 to 24.00
Clean cast. chem. borings	26.00 to 27.00
Low phos. 5 ft and under	37.00 to 40.00
Low phos. 2 ft punch'gs	39.00 to 42.00
Elec. furnace bundles	38.00 to 39.00
Heavy turnings	32.00 to 33.00
RR specialties	42.00 to 43.00
Rails 18 in. and under	58.00 to 60.00
Cupola cast.	40.00 to 41.00
Heavy breakable cast.	41.00 to 42.00
Cast iron car wheels	44.00 to 45.00
Malleable	67.00 to 68.00
No. 1 machinery cast.	49.00 to 50.00

Cincinnati

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$32.50 to $33.50
No. 2 hvy. melting	27.50 to 28.50
No. 1 dealer bundles	32.50 to 33.50
No. 2 bundles	21.00 to 22.00
Machine shop turn.	14.00 to 15.00
Shoveling turnings	17.00 to 18.00
Cast iron borings	16.00 to 17.00
Low phos. 18 in. and under	41.00 to 42.00
Rails, random length	46.00 to 47.00
Rails, 18 in. and under	53.00 to 54.00
No. 1 cupola cast.	45.00 to 46.00
Hvy. breakable cast.	40.00 to 41.00
Drop broken cast.	49.00 to 50.00

Youngstown

No. 1 hvy. melting	$37.50 to $38.50
No. 2 hvy. melting	31.50 to 32.50
No. 1 dealer bundles	37.50 to 38.50
No. 2 bundles	24.00 to 25.00
Machine shop turn.	19.50 to 20.50
Shoveling turnings	24.50 to 25.50
Low phos. plate	39.50 to 40.50

Cleveland

No. 1 hvy. melting	$34.00 to $35.00
No. 2 hvy. melting	28.00 to 29.00
No. 1 dealer bundles	34.00 to 35.00
No. 1 factory bundles	41.00 to 42.00
No. 2 bundles	23.00 to 24.00
No. 1 busheling	34.00 to 35.00
Machine shop turn.	16.00 to 17.00
Mixed bor. and turn.	21.00 to 22.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	21.00 to 22.00
Cut structural & plates, 2 ft & under	41.00 to 42.00
Drop forge flashings	34.00 to 35.00
Low phos. punch'gs plate	35.00 to 36.00
Foundry steel, 2 ft & under	36.00 to 37.00
No. 1 RR hvy. melting	37.00 to 38.00
Rails 2 ft and under	55.00 to 56.00
Rails 18 in. and under	56.00 to 57.00
Steel axle turnings	24.00 to 25.00
Railroad cast.	53.00 to 54.00
No. 1 machinery cast.	51.00 to 52.00
Stove plate	48.00 to 49.00
Malleable	66.00 to 67.00
Stainless	
18-8 bundles	215.00 to 225.00
18-8 turnings	115.00 to 120.00
430 bundles	120.00 to 125.00

Buffalo

No. 1 hvy. melting	$31.00 to $32.00
No. 2 hvy. melting	26.00 to 27.00
No. 1 busheling	31.00 to 32.00
No. 1 dealer bundles	31.00 to 32.00
No. 2 bundles	22.00 to 23.00
Machine shop turn.	15.00 to 16.00
Mixed bor. and turn.	16.00 to 17.00
Shoveling turnings	19.00 to 20.00
Cast iron borings	16.00 to 17.00
Low phos. plate	38.00 to 39.00
Structurals and plate, 2 ft and under	41.00 to 42.00
Scrap rails, random lgth.	39.00 to 40.00
Rails 2 ft and under	49.00 to 50.00
No. 1 machinery cast.	48.00 to 49.00
No. 1 cupola cast.	44.00 to 45.00

St. Louis

No. 1 hvy. melting	$33.00 to $34.00
No. 2 hvy. melting	31.00 to 32.00
No. 1 dealer bundles	37.00 to 38.00
No. 2 bundles	21.00 to 22.00
Machine shop turn.	12.00 to 13.00
Shoveling turnings	14.00 to 15.00
Cast iron borings	18.00 to 19.00
No. 1 RR hvy. melting	38.00 to 39.00
Rails, random lengths	43.00 to 44.00
Rails, 18 in. and under	49.00 to 50.00
Angles and splice bars	44.00 to 45.00
RR specialties	43.00 to 44.00
Cupola cast.	48.00 to 49.00
Heavy breakable cast.	40.00 to 41.00
Cast iron brake shoes	38.50 to 39.50
Stove plate	43.00 to 44.00
Cast iron car wheels	40.00 to 41.00
Rerolling rails	54.00 to 55.00
Unstripped motor blocks	41.00 to 42.00

Birmingham

No. 1 hvy. melting	$28.00 to $29.00
No. 2 hvy. melting	21.00 to 22.00
No. 1 dealer bundles	28.00 to 29.00
No. 2 bundles	21.00 to 22.00
No. 1 busheling	28.00 to 29.00
Machine shop turn.	20.00 to 21.00
Shoveling turnings	21.00 to 22.00
Cast iron borings	14.00 to 15.00
Electric furnace bundles	34.00 to 35.00
Elec. furnace, 3 ft & under	32.00 to 33.00
Bar crops and plate	38.00 to 39.00
Structural and plate, 2 ft	38.00 to 39.00
No. 1 RR hvy. melting	33.00 to 34.00
Scrap rails, random lgth.	40.00 to 41.00
Rails, 18 in. and under	48.00 to 49.00
Angles and splice bars	42.00 to 43.00
Rerolling rails	52.00 to 53.00
No. 1 cupola cast.	53.00 to 54.00
Stove plate	53.00 to 54.00
Cast iron car wheels	39.00 to 40.00
Unstripped motor blocks	40.00 to 41.00

New York

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$26.00 to $27.00
No. 2 hvy. melting	21.00 to 22.00
No. 2 dealer bundles	15.00 to 16.00
Machine shop turnings	9.00 to 10.00
Mixed bor. and turn.	11.00 to 12.00
Shoveling turnings	13.00 to 14.00
Clean chem. cast. borings	20.00 to 21.00
No. 1 machinery cast.	37.00 to 38.00
Mixed yard cast.	35.00 to 36.00
Heavy breakable cast.	33.00 to 34.00
Stainless	
18-8 prepared solids	195.00 to 200.00
18-8 turnings	85.00 to 90.00
430 prepared solids	85.00 to 90.00
430 turnings	20.00 to 25.00

Detroit

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$29.00 to $30.00
No. 2 hvy. melting	20.00 to 21.00
No. 1 dealer bundles	31.00 to 32.00
No. 2 bundles	17.00 to 18.00
No. 1 busheling	29.00 to 30.00
Drop forge flashings	28.00 to 29.00
Machine shop turn.	11.00 to 12.00
Mixed bor. and turn.	12.00 to 13.00
Shoveling turnings	13.00 to 14.00
Cast iron borings	12.00 to 13.00
Heavy breakable cast.	31.00 to 32.00
Mixed cupola cast.	41.00 to 42.00
Automotive cast.	47.00 to 48.00
Stainless	
18-8 bundles and solids	210.00 to 215.00
18-8 turnings	100.00 to 105.00
430 bundles and solids	100.00 to 105.00

Boston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$24.00 to $25.00
No. 2 hvy. melting	20.00 to 21.00
No. 1 dealer bundles	24.00 to 25.00
No. 2 bundles	12.00 to 13.00
No. 1 busheling	24.00 to 25.00
Machine shop turn.	6.00 to 7.00
Shoveling turnings	11.00 to 12.00
Clean cast. chem. borings	16.00 to 17.00
No. 1 machinery cast.	33.00 to 34.00
Mixed cupola cast.	33.00 to 34.00
Heavy breakable cast.	31.00 to 32.00
Stove plate	29.00 to 30.00

San Francisco

No. 1 hvy. melting	$36.00
No. 2 hvy. melting	33.00
No. 1 dealer bundles	33.00
No. 2 bundles	22.00
Machine shop turn.	17.00
Cast iron borings	17.00
No. 1 cupola cast.	45.00

Los Angeles

No. 1 hvy. melting	$38.00
No. 2 hvy. melting	36.00
No. 1 dealer bundles	35.00
No. 2 bundles	18.00
Machine shop turn.	$16.00 to 17.00
Shoveling turnings	18.00 to 19.00
Cast iron borings	18.00 to 19.00
Elec. furn. 1 ft and under (foundry)	49.00
No. 1 cupola cast.	45.00

Seattle

No. 1 hvy. melting	$35.00
No. 2 hvy. melting	33.00
No. 2 bundles	22.00
No. 1 cupola cast.	36.00
Mixed yard cast.	36.00

Hamilton, Ont.

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$32.25
No. 2 hvy. melting	28.25
No. 1 dealer bundles	32.25
No. 2 bundles	22.75
Mixed steel scrap	24.25
Bush., new fact., prep'd	32.25
Bush., new fact., unprep'd	26.25
Machine shop turn.	14.00
Shortsteel turn.	17.00
Mixed bor. and turn.	13.00
Rails, rerolling	37.00
Cast scrap	$46.50 to 48.00

Houston

Brokers buying prices per gross ton on cars:

No. 1 hvy. melting	$34.00
No. 2 hvy. melting	31.00
No. 2 bundles	20.00
Machine shop turn.	16.00
Shoveling turnings	20.00
Cut structural plate 2 ft & under	$44.00 to 45.00
Unstripped motor blocks	37.00 to 38.00
Cupola cast.	44.00 to 45.00
Heavy breakable cast.	28.00 to 29.00

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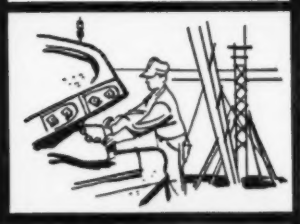

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Brass Mill Sales Are Still Good

Business has leveled off from sharp rise in the first period.

But mills are satisfied with buying, say they have other grounds for optimism.

▪ Brass mill business isn't improving as it was a month ago. But there's still bounce in the step of mill management. Here's the picture:

Brass mill business boomed in the first quarter. Then it started to level off. For most, the last month has been a new order plateau. Some are still moving up but much more slowly; a few are declining slightly.

Why the Market Changed—There's no mystery why. Brass mill customers were building inventory during the first period in anticipation of (1) improvement in their business, and (2) a copper strike. At about the end of March a combination of bigger inventories and less strike talk reduced demand for copper and brass mill products.

Mill sales people are pretty sure the vast majority of new orders now are for current consumption.

And brass mill sales chiefs don't think their customers have built up very imposing inventories. The sales head of one major mill said he was pretty sure there was "no tremendous inventory buildup." Another thought his customers were "in fair shape." And a third reported his customers "still shallow on inventory."

What's Ahead—This may make the difference. Mill management won't say it out loud, but is almost ready to writeoff the third quarter. Reason: Most steel users are big brass mill customers. If a steel strike lasts more than 30 days, in the opinion of brass mills, many of their customers will have to cut back their operations, and their brass buying.

But with relatively light inventories of brass mill products in the hands of customers, fourth quarter buying could come back more than enough to take the sting out of the third period sales picture for the mills.

Also making mills happy: The plateau on which sales are now sitting is generally regarded as very satisfactory.

The import problem "is getting worse all the time," says one mill sales vice president. Most of the mills agree, point out that importers are widening their line of mill products as well as their portion of the market.

Import Pinch—But many domestic sellers aren't feeling the pinch quite as much as a year ago because of the general increase in their own sales. The general feeling is, it is a problem that is going to have to be dealt with sooner or later, especially since the opening of the Seaway has cut freight costs to the Midwest.

On their own inventories of copper, brass mills are generally confident. Most mills believe they have enough metal lined up to keep going for at least 30 days if major U. S. producers are shut down by strikes. Some have 60 day inventories, and a few are out to 90 days.

Aluminum

Management of the Big U. S. producers will come to the bargaining table with the strongest hands they've had in years. Their contracts with the major unions expire July 31.

Traditionally, aluminum takes its cue from steel. This year steel's position is "Hold the line."

Also, latest report from the Aluminum Assn. indicates primary output for April failed to top the all-time high made the previous month by the slim margin of less than 2,000 tons. Output in April was 155,213 tons; March 157,189 tons.

But output for the year through April was 611,219 tons, compared to 520,909 tons for the same period last year. At this rate production for the year will hit a new high topping 1.9 million tons.

Producers report a sharp rise in shipments which means, say some observers, that at least some customers are starting to consider the possibility of strikes and are taking precautions.

Tin prices for the week: May 20 —103.25; May 21—103.25; May 22 — 103.50; May 25 — 103.50; May 26—103.625.*

* Estimate.

Primary Prices

(cents per lb)	current price	last price	date of change
Aluminum pig	24.70	24.00	8/1/58
Aluminum ingot	26.80	26.10	8/1/58
Copper (E)	31.50	30.00	3/9/59
Copper (CS)	32.00	32.50	4/30/59
Copper (L)	31.50	30.00	3/9/59
Lead, St. L.	11.80	11.30	5/7/59
Lead, N. Y.	12.00	11.50	5/7/59
Magnesium ingot	36.00	34.50	8/13/58
Magnesium pig	35.25	33.75	8/13/58
Nickel	74.00	64.50	12/8/58
Titanium sponge	162-182	185-205	11/3/58
Zinc, E. St. L.	11.00	11.50	2/25/59
Zinc, N. Y.	11.50	12.00	2/25/59

ALUMINUM: 99% ingot frt allwd. COPPER: (E) = electrolytic, (CS) = custom smelters, electrolytic. (L) = lake. LEAD: common grade. MAGNESIUM: 99.8% pig Velasco, Tex. NICKEL: Port Colborne, Canada. ZINC: prime western. TIN: See above; Other primary prices, pg. 165.

NONFERROUS PRICES

MILL PRODUCTS

(Cents per lb unless otherwise noted)

ALUMINUM

(Base 30,000 lb, f.o.b. ship pt., frt. allowed)

Flat Sheet (Mill Finish and Plate)

("F" temper except 6061-0)

Alloy	.032	.081	.136-.249	.250-3.
1100, 3003	45.7	43.8	42.8	43.3
5052	53.1	48.4	46.9	46.0
6061-0	50.1	45.7	43.9	44.9

Extruded Solid Shapes

Factor	6063 T-5	6062 T-6
6–8	42.7–44.2	51.1–54.8
12–14	42.7–44.2	52.0–56.5
24–26	43.2–44.7	62.8–67.5
36–38	46.7–49.2	86.9–90.5

Screw Machine Stock—2011-T-3

Size"	¼	5/16–⅜	⅞–1	1¼–1½
Price	62.0	61.2	59.7	57.3

Roofing Sheet, Corrugated

(Per sheet, 26" wide base, 16,000 lb)

Length"→	72	96	120	144
.019 gage	$1.411	$1.884	$2.353	$2.823
.024 gage	1.762	2.349	2.937	3.524

MAGNESIUM

(F.o.b. shipping pt., carload frt. allowed)

Sheet and Plate

Type→ Gage→	.250 3.00	.250–2.00	.188	.081	.032
AZ31B Stand. Grade	.....	67.9	69.0	77.9	103.1
AZ31B Spec.	.....	93.3	95.7	108.7	171.3
Tread Plate	.....	70.6	71.7	.....	.....
Tooling Plate	73.0	.....	.....	.....	.....

Extruded Shapes

factor→	6-8	12-14	24-26	36-38
Comm. Grade. (AZ31C)	65.3	65.3	66.1	71.5
Spec. Grade... (AZ31B)	84.6	85.7	90.6	104.2

Alloy Ingot

AZ91B (Die Casting)..... 37.25 (delivered)
AZ63A, AZ92A, AZ91C (Sand Casting) 40.75 (Velasco, Tex.)

NICKEL, MONEL, INCONEL

(Base prices f.o.b. mill)

	"A" Nickel	Monel	Inconel
Sheet, CR	126	106	128
Strip, CR	124	108	138
Rod, bar, HR	107	89	109
Angles, HR	107	89	109
Plates, HR	120	105	121
Seamless tube	157	129	200
Shot, blocks	...	87	...

COPPER, BRASS, BRONZE

(Freight included in 5000 lbs)

	Sheet	Wire	Rod	Tube
Copper	55.63	.....	52.86	55.82
Brass, Yellow	48.24	48.75	48.18	51.05
Brass, Low	51.23	51.77	51.17	54.54
Brass, R L	52.29	52.83	52.23	55.60
Brass, Naval	52.80	.....	46.61	56.21
Muntz Metal	50.85	.....	46.16	.....
Comm. Bz.	53.90	54.44	53.84	56.96
Mang. Bz.	56.54	.....	50.14	.....
Phos. Bz. 5%	75.34	.....	75.84	.....

Free Cutting Brass Rod..... 32.73

TITANIUM

(Base prices, f.o.b. mill)

Sheet and strip, commercially pure, $6.90-$7.40; alloy, $14.35, Plate, HR, commercially pure, $5.00-$5.75; alloy, $7.75-$8.50. Wire, rolled and/or drawn, commercially pure, $5.50-$6.00; alloy, $8.00-$9.50; Bar, HR or forged, commercially pure, $4.25-$4.65; alloy, $4.25-$7.15; billets, HR, commercially pure, $3.55-$4.10; alloy, $3.55-$5.75.

PRIMARY METAL

(Cents per lb unless otherwise noted)

Antimony, American, Laredo, Tex.. 29.50
Beryllium Aluminum 5% Be, Dollar per lb contained Be $74.75
Beryllium copper, per lb conta'd Be..$43.00
Beryllium 97% lump or beads, f.o.b. Cleveland, Reading $71.50
Bismuth, ton lots .....$ 2.25
Cadmium, del'd .....$ 1.30
Calcium, 99.9% small lots .....$ 4.55
Chromium, 99.8% metallic basis...$ 1.31
Cobalt, 97-99% (per lb) ....$1.75 to $1.82
Germanium, per gm, f.o.b. Miami, Okla., refined .....35.00 to 42.00
Gold, U. S. Treas., per troy oz. $35.00
Indium, 99.9%, dollars per troy oz..$ 2.25
Iridium, dollars per troy oz. ...$75 to $85
Lithium, 98% .....$11.00 to $14.00
Magnesium, sticks, 100 to 500 lb.... 59.00
Mercury, dollars per 76-lb flask f.o.b. New York .....$244 to $248
Nickel oxide sinter at Buffalo, N. Y., or other U. S. points of entry, contained nickel 69.60
Palladium, dollars per troy oz...$18 to $20
Platinum, dollars per troy oz...$77 to $80
Rhodium .....$120.00 to $125.00
Silver ingots (¢ per troy oz.) 91.375
Thorium, per kg. $43.00
Vanadium .....$ 3.45
Zirconium sponge .....$ 5.00

REMELTED METALS

Brass Ingot

(Cents per lb delivered, carloads)

85-5-5 ingot
- No. 115 ..... 30.25
- No. 120 ..... 29.00
- No. 123 ..... 28.00

80-10-10 ingot
- No. 305 ..... 34.50
- No. 315 ..... 32.50

88-10-2 ingot
- No. 210 ..... 43.50
- No. 215 ..... 39.25
- No. 245 ..... 35.00

Yellow ingot
- No. 405 ..... 24.75

Manganese bronze
- No. 421 ..... 27.75

Aluminum Ingot

(Cents per lb del'd 30,000 lb and over)

95-5 aluminum-silicon alloys
- 0.30 copper max. 24.75-25.00
- 0.60 copper max. 24.50-24.75

Piston alloys (No. 122 type)..24.25-25.25
No. 12 alum. (No. 2 grade)...21.50-22.00
108 alloy 22.00-22.50
195 alloy 25.00-26.00
13 alloy (0.60 copper max.)...24.25-24.75
AXS-679 (1 pct zinc) 21.75-22.25

(Effective May 25, 1959)

Steel deoxidizing aluminum notch bar granulated or shot

Grade 1—95-97½% 22.50-23.50
Grade 2—92-95% 21.25-22.25
Grade 3—90-92% 20.25-21.25
Grade 4—85-90% 17.50-18.50

SCRAP METALS

Brass Mill Scrap

(Cents per pound, add 1¢ per lb for shipments of 20,000 lb and over)

	Heavy	Turnings
Copper	27½	26¾
Yellow brass	20⅝	18¾
Red brass	24¼	23½
Comm. bronze	25⅛	24⅜
Mang. bronze	19⅛	18⅜
Free cutting rod ends.	20½	

Customs Smelters Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	28¼
No. 2 copper wire	26¾
Light copper	24¾
*Refinery brass	26¼
Copper bearing material	25¾

*Dry copper content.

Ingot Makers Scrap

(Cents per pound carload lots, delivered to refinery)

No. 1 copper wire	28¼
No. 2 copper wire	26¾
Light copper	24¾
No. 1 composition	22
No. 1 comp. turnings	21½
Hvy. yellow brass solids	16
Brass pipe	16½
Radiators	17
Aluminum	
Mixed old cast.	13½—14½
Mixed new clips	16 —17
Mixed turnings, dry	14 —15

Dealers' Scrap

(Dealers' buying price f.o.b. New York in cents per pound)

Copper and Brass

No. 1 copper wire	25½—26
No. 2 copper wire	23½—24
Light copper	21½—22
Auto radiators (unsweated)	14½—15
No. 1 composition	19 —19½
No. 1 composition turnings	17½—18
Cocks and faucets	15 —15½
Clean heavy yellow brass	13½—13¾
Brass pipe	15 —15½
New soft brass clippings	15⅝—16¼
No. 1 brass rod turnings	13 —13½

Aluminum

Alum. pistons and struts	6 — 6½
Aluminum crankcase	9½—10
1100 (2s) aluminum clippings	13 —13½
Old sheet and utensils	9½—10
Borings and turnings	6 — 6½
Industrial castings	9½—10
2020 (24S) clippings	11 —11½

Zinc

New zinc clippings	4¾— 5¼
Old zinc	3¼— 3½
Zinc routings	2 — 2¼
Old die cast scrap	1⅝— 2

Nickel and Monel

Pure nickel clippings	52-54
Clean nickel turnings	37-40
Nickel anodes	52-54
Nickel rod ends	52-54
New Monel clippings	30-32
Clean Monel turnings	30-32
Old sheet Monel	26-28
Nickel silver clippings, mixed	18
Nickel silver turnings, mixed	15

Lead

Soft scrap lead	7 — 7¼
Battery plates (dry)	2 — 2¼
Batteries, acid free	1⅞— 2⅛

Miscellaneous

Block tin	77 —78
No. 1 pewter	59 —60
Auto babbitt	40 —41
Mixer common babbitt	9½—10
Solder joints	13¼—13¾
Siphon tops	42
Small foundry type	9½—10
Monotype	9½—10
Lino. and stereotype	8½— 9
Electrotype	7 — 7½
Hand picked type shells	5¼—5¾
Lino. and stereo. dross	2¼— 2¾
Electro dross	2¼— 2¾

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BILLETS, BLOOMS, SLABS			PIL-ING	SHAPES STRUCTURALS			STRIP					
		Carbon Rerolling Net Ton	Carbon Forging Net Ton	Alloy Net Ton	Sheet Steel	Carbon	Hi Str. Low Alloy	Carbon Wide-Flange	Hot-rolled	Cold-rolled	Hi Str. H.R. Low Alloy	Hi Str. C.R. Low Alloy	Alloy Hot-rolled	Alloy Cold-rolled
EAST	Bethlehem, Pa.			$119.00 *B3*		5.55 *B3*	8.10 *B3*	5.55 *B5*						
	Buffalo, N. Y.	$80.00 *R3, B3*	$99.50 *R3, B3*	$119.00 *R3, B3*	6.50 *B3*	5.55 *B3*	8.10 *B3*	5.55 *B3*	5.10 *B3, R3*	7.425 *S10, R7*	7.575 *B3*			
	Phila., Pa.									7.875 *P15*				
	Harrison, N. J.													15.55 *C11*
	Conshohocken, Pa.		$104.50 *A2*	$126.00 *A2*					5.15 *A2*		7.575 *A2*			
	New Bedford, Mass.									7.875 *R6*				
	Johnstown, Pa.	$80.00 *B3*	$99.50 *B3*	$119.00 *B3*		5.55 *B3*	8.10 *B3*							
	Boston, Mass.									7.975 *T8*				
	New Haven, Conn.									7.875 *D1*				
	Baltimore, Md.									7.425 *T8*				15.90 *T8*
	Phoenixville, Pa.					5.55 *P2*		5.55 *P2*						
	Sparrows Pt., Md.								5.10 *B3*		7.575 *B3*			
	New Britain, Bridgeport, Wallingford, Conn.			$119.00 *N8*						7.875 *W1,S7*				
	Pawtucket, R. I. Worcester, Mass.									7.975 *N7, A5*				15.90 *N7* 15.70 *T8*
MIDDLE WEST	Alton, Ill.								5.30 *L1*					
	Ashland, Ky.								5.10 *A7*		7.575 *A7*			
	Canton-Massillon, Dover, Ohio		$102.00 *R3*	$119.00 *R3,* $114.00 *T5*						7.425 *G4*		10.80 *G4*		
	Chicago, Franklin Park, Evanston, Ill.	$80.00 *U1, R3*	$99.50 *U1, R3,W8*	$119.00 *U1, R3,W8*	6.50 *U1*	5.50 *U1, W8,P13*	8.05 *U1, Y1,W8*	5.50 *U1*	5.10 *W8, N4,A1*	7.525 *A1,T8, M8*	7.575 *W8*		8.40 *W8, S9,I3*	15.55 *A1, S9,G4,T8*
	Cleveland, Ohio									7.425 *A5,J3*		10.75 *A5*	8.40 *J3*	
	Detroit, Mich.			$119.00 *R5*					5.10 *G3, M2*	7.425 *M2, S1, D1,P11*	7.575 *G3*	10.80 *S1*		
	Anderson, Ind.									7.425 *G4*				
	Gary, Ind. Harbor, Indiana	$80.00 *U1*	$99.50 *U1*	$119.00 *U1, Y1*		5.50 *U1, I3*	8.05 *U1, J3*	5.50 *I3*	5.10 *U1, I3,Y1*	7.425 *Y1*	7.575 *U1, I3,Y1*	10.90 *Y1*	8.40 *U1, Y1*	
	Sterling, Ill.	$80.00 *N4*				5.50 *N4*	7.75 *N4*	5.50 *N4*	5.20 *N4*					
	Indianapolis, Ind.									7.575 *R5*				15.70 *R5*
	Newport, Ky.								5.10 *A9*				8.40 *A9*	
	Niles, Warren, Ohio Sharon, Pa.		$99.50 *S1, C10*	$119.00 *C10,S1*					5.10 *R3, S1*	7.425 *R3, T4,S1*	7.575 *R3, S1*	10.80 *R3, S1*	8.40 *S1*	15.55 *S1*
	Owensboro, Ky.	$80.00 *G5*	$99.50 *G5*	$119.00 *G5*										
	Pittsburgh, Midland, Butler, Aliquippa, McKeesport, Pa.	$80.00 *U1, P6*	$99.50 *U1, C11,P6*	$119.00 *U1, C11,B7*	6.50 *U1*	5.50 *U1, J3*	8.05 *U1, J3*	5.50 *U1*	5.10 *P6*	7.425 *J3,B4* 7.525 *E3*			8.40 *S9*	15.55 *S9*
	Weirton, Wheeling, Follansbee, W. Va.				6.50 *U1, W3*	5.50 *W3*		5.50 *W3*	5.10 *W3*	7.425 *F3*	7.575 *W3*	10.80 *W3*		
	Youngstown, Ohio	$80.00 *R3*	$99.50 *Y1, C10*	$119.00 *Y1*			8.05 *Y1*		5.10 *U*	7.425 *Y1,R5*	7.575 *U1, Y1*	10.95 *Y1*	8.40 *U1, Y1*	15.55 *R5, Y1*
WEST	Fontana, Cal.	$90.50 *K1*	$109.00 *K1*	$140.00 *K1*		6.30 *K1*	8.85 *K1*	6.45 *K1*	5.825 *K1*	9.20 *K1*				
	Geneva, Utah		$99.50 *C7*			5.50 *C7*	8.05 *C7*							
	Kansas City, Mo.					5.60 *S2*	8.15 *S2*						8.65 *S2*	
	Los Angeles, Torrance, Cal.		$109.00 *B2*	$139.00 *B2*		6.20 *C7, B2*	8.75 *B2*		5.85 *C7, B2*	9.30 *C1,R5*			9.60 *B2*	17.75 *J3*
	Minnequa, Colo.					5.80 *C6*			6.20 *C6*	9.375 *C6*				
	Portland, Ore.					6.25 *O2*								
	San Francisco, Niles, Pittsburg, Cal.		$109.00 *B2*			6.15 *B2*	8.70 *B2*		5.85 *C7, B2*					
	Seattle, Wash.		$109.00 *B2*			6.25 *B2*	8.80 *B2*		6.10 *B2*					
SOUTH	Atlanta, Ga.					5.70 *A8*			5.10 *A8*					
	Fairfield, Ala. City, Birmingham, Ala.	$80.00 *T2*	$99.50 *T2*			5.50 *T2 R3,C16*	8.05 *T2*		5.10 *T2, R3,C16*		7.575 *T2*			
	Houston, Lone Star, Texas		$104.50 *S2*	$124.00 *S2*		5.60 *S2*	8.15 *S2*						8.65 *S2*	

(Effective May 25, 1959)

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		SHEETS								WIRE ROD	TINPLATE†		
		Hot-rolled *18* ga. & hvyr.	Cold-rolled	Galvanized (Hot-dipped)	Enameling	Long Terne	Hi Str. Low Alloy H.R.	Hi Str. Low Alloy C.R.	Hi Str. Low Alloy Galv.		Cokes* *1.25*-lb. base box	Electro** *0.25*-lb. base box	Holloware Enameling *29* ga.
EAST	Buffalo, N. Y.	5.10 *B3*	6.275 *B3*				7.525 *B3*	9.275 *B3*		6.40 *W6*	† Special coated mfg. terne deduct 35¢ from 1.25-lb. coke base box price, 0.75 lb./0.25 lb. add 55¢. Can-making quality BLACKPLATE 55 to 128 lb. deduct $2.20 from 1.25 lb. coke base box. * COKES: 1.50-lb. add 25¢. **ELECTRO: 0.50-lb. add 25¢; 0.75-lb. add 65¢; 1.00-lb. add $1.00. Differential 1.00 lb./0.25 lb. add 65¢.		
	Claymont, Del.												
	Coatesville, Pa.												
	Conshohocken, Pa.	5.15 *A2*	6.325 *A2*				7.575 *A2*						
	Harrisburg, Pa.												
	Hartford, Conn.												
	Johnstown, Pa.									6.40 *B3*			
	Fairless, Pa.	5.15 *U1*	6.325 *U1*				7.575 *U1*	9.325 *U1*			$10.50 *U1*	$9.20 *U1*	
	New Haven, Conn.												
	Phoenixville, Pa.												
	Sparrows Pt., Md.	5.10 *B3*	6.275 *B3*	6.875 *B3*			7.525 *B3*	9.275 *B3*	10.025 *B3*	6.50 *B3*	$10.40 *B3*	$9.10 *B3*	
	Worcester, Mass.									6.70 *A5*			
	Trenton, N. J.												
MIDDLE WEST	Alton, Ill.									6.60 *L1*			
	Ashland, Ky.	5.10 *A7*		6.875 *A7*	6.775 *A7*		7.525 *A7*						
	Canton-Massillon, Dover, Ohio			6.875 *R1, R3*									
	Chicago, Joliet, Ill.	5.10 *W8, A1*					7.525 *U1, W8*			6.40 *A5, R3,W8*			
	Sterling, Ill.									6.50 *N4, K2*			
	Cleveland, Ohio	5.10 *R3, J3*	6.275 *R3, J3*	7.65 *R3**	6.775 *R3*		7.525 *R3, J3*	9.275 *R3, J3*		6.40 *A5*			
	Detroit, Mich.	5.10 *G3, M2*	6.275 *G3, M2*				7.525 *G3*	9.275 *G3*					
	Newport, Ky.	5.10 *A1*	6.275 *A1*										
	Gary, Ind. Harbor, Indiana	5.10 *U1, I3,Y1*	6.275 *U1, I3,Y1*	6.875 *U1, I3*	6.775 *U1, I3,Y1*	7.225 *U1*	7.525 *U1, Y1,I3*	9.275 *U1, Y1*		6.40 *Y1*	$10.40 *U1, Y1*	$9.10 *J3, U1,Y1*	7.85 *U1, Y1*
	Granite City, Ill.	5.20 *G2*	6.375 *G2*	6.975 *G2*	6.875 *G2*							$9.20 *G2*	7.95 *G2*
	Kokomo, Ind.			6.975 *C9*		7.225 *E2*				6.50 *C9*			
	Mansfield, Ohio	5.10 *E2*	6.275 *E2*										
	Middletown, Ohio		6.275 *A7*	6.875 *A7*	6.775 *A7*	7.225 *A7*							
	Niles, Warren, Ohio Sharon, Pa.	5.10 *R3, S1*	6.275 *R3*	6.875 *R3* 7.65 *R3**	6.775 *S1*	7.225 *S1**, *R3*	7.525 *R3, S1*	9.275 *R3,*				$9.10 *R3*	
	Pittsburgh, Midland, Butler, Donora, Aliquippa, McKeesport, Pa.	5.10 *U1, J3,P6*	6.275 *U1, J3,P6*	6.875 *U1, J3* 7.50 *E3**	6.775 *U1*		7.525 *U1, J3*	9.275 *U1, J3*	10.025 *U1, J3*	6.40 *A5, J3,P6*	$10.40 *W5, J3*	$9.10 *U1, J3*	7.85 *U1, J3*
	Portsmouth, Ohio	5.10 *P7*	6.275 *P7*							6.40 *P7*			
	Weirton, Wheeling, Follansbee, W. Va.	5.10 *W3, W5*	6.275 *W3, F3,W5*	6.875 *W3, W5* 7.50 *W3**		7.225 *W3, W5*	7.525 *W3*	9.275 *W3*			$10.40 *W5, W3*	$9.10 *W5, W3*	7.85 *W5*
	Youngstown, Ohio	5.10 *U1, Y1*	6.275 *Y1*	7.50 *J3**	6.775 *Y1*		7.525 *Y1*	9.275 *Y1*		6.40 *Y1*			
WEST	Fontana, Cal.	5.825 *K1*	7.40 *K1*				8.25 *K1*	10.40 *K1*			$11.05 *K1*	$9.75 *K1*	
	Geneva, Utah	5.20 *C7*											
	Kansas City, Mo.									6.65 *S2*			
	Los Angeles, Torrance, Cal.									7.20 *B2*			
	Minnequa, Colo.									6.65 *C6*			
	San Francisco, Niles, Pittsburg, Cal.	5.80 *C7*	7.225 *C7*	7.625 *C7*						7.20 *C7*	$11.05 *C7*	$9.75 *C7*	
SOUTH	Atlanta, Ga.												
	Fairfield, Ala. Alabama City, Ala.	5.10 *T2, R3*	6.275 *T2, R3*	6.875 *T2, R3*	6.775 *T2*					6.40 *T2,R3*	$10.50 *T2*	$9.20 *T2*	
	Houston, Texas									6.65 *S2*			

*Electrogalvanized sheets.

(Effective May 25, 1959)

*7.425 at Sharon-Niles is 7.225

IRON AGE

STEEL PRICES

Italics identify producers listed in key at end of table. Base prices, f.o.b. mill, in cents per lb., unless otherwise noted. Extras apply.

		BARS						PLATES				WIRE
		Carbon† Steel	Reinforcing	Cold Finished	Alloy Hot-rolled	Alloy Cold Drawn	Hi Str. H.R. Low Alloy	Carbon Steel	Floor Plate	Alloy	Hi Str. Low Alloy	Mfr's. Bright
EAST	Bethlehem, Pa.				6.725 *B3*	9.025 *B3*	8.30 *B3*					
	Buffalo, N. Y.	5.675 *R3,B3*	5.675 *R3,B3*	7.70 *B5*	6.725 *B3,R3*	9.025 *B3,B5*	8.30 *B3*	5.30 *B3*				8.00 *W6*
	Claymont, Del.							5.30 *C4*		7.50 *C4*	7.95 *C4*	
	Coatesville, Pa.							5.30 *L4*		7.50 *L4*	7.95 *L4*	
	Conshohocken, Pa.							5.30 *A2*	6.375 *A2*	7.50 *A2*	7.95 *A2*	
	Harrisburg, Pa.							5.30 *P2*	6.375 *P2*			
	Milton, Pa.	5.825 *M7*	5.825 *M7*									
	Hartford, Conn.			8.15 *R3*		9.325 *R3*						
	Johnstown, Pa.	5.675 *B3*	5.675 *B3*		6.725 *B3*		8.30 *B3*	5.30 *B3*		7.50 *B3*	7.95 *B3*	8.00 *B3*
	Fairless, Pa.	5.825 *U1*	5.825 *U1*		6.875 *U1*							
	Newark, Camden, N. J.			8.10 *W10, P10*		9.20 *W10, P10*						
	Bridgeport, Putnam, Willimantic, Conn.			8.20 *W10* 8.15 *J3*	6.80 *N8*	9.175 *N8*						
	Sparrows Pt., Md.		5.675 *B3*					5.30 *B3*		7.50 *B3*	7.95 *B3*	8.10 *B3*
	Palmer, Worcester, Readville, Mansfield, Mass.			8.20 *B5, C14*		9.325 *A5,B5*						8.30 *A5, W6*
	Spring City, Pa.			8.10 *K4*		9.20 *K4*						
MIDDLE WEST	Alton, Ill.	5.875 *L1*										8.20 *L1*
	Ashland, Newport, Ky.							5.30 *A7, A9*		7.50 *A9*	7.95 *A7*	
	Canton, Massillon, Mansfield, Ohio	6.15* *R3*		7.65 *R3,R2*	6.725 *R3* 6.475 *T5*	9.025 *R3,R2* 8.775 *T5*		5.30 *E2*				
	Chicago, Joliet, Waukegan, Madison, Harvey, Ill.	5.675 *U1,R3, W8,N4,P13*	5.675 *U1,R3, N4,P13,W8* 5.875 *L1*	7.65 *A5, W10,W8, B5,L2,N9*	6.725 *U1,R3, W8*	9.025 *A5, W10,W8, L2,N8,B5*	8.30 *U1,W8, R3*	5.30 *U1,A1, W8,I3*	6.375 *U1*	7.50 *U1, W8*	7.95 *U1, W8*	8.00 *A5,R3, W8,N4, K2,W7*
	Cleveland, Elyria, Ohio	5.675 *R3*	5.675 *R3*	7.65 *A5,C13, C18*		9.025 *A5, C13,C18*	8.30 *R3*	5.30 *R3,J3*	6.375 *J3*		7.95 *R3,J3*	8.00 *A5, C13,C18*
	Detroit, Mich.	5.675 *G3*	5.675 *G3*	7.90 *P3* 7.85 *P8,B5* 7.65 *R5*	6.725 *R5,G3*	9.025 *R5* 9.225 *B5,P3, P8*	8.30 *G3*	5.30 *G3*		7.50 *G3*	7.95 *G3*	
	Duluth, Minn.											8.00 *A5*
	Gary, Ind. Harbor, Crawfordsville, Hammond, Ind.	5.675 *U1,I3, Y1*	5.675 *U1,I3, Y1*	7.65 *R3,J3*	6.725 *U1,I3, Y1*	9.025 *R3,M4*	8.30 *U1,Y1*	5.30 *U1,I3, Y1*	6.375 *J3, I1*	7.50 *U1, Y1*	7.95 *U1, Y1,I3*	8.10 *M4*
	Granite City, Ill.							5.40 *G2*				
	Kokomo, Ind.		5.775 *C9*									8.10 *C9*
	Sterling, Ill.	5.775 *N4*	5.775 *N4*					5.30 *N4*				8.10 *K2*
	Niles, Warren, Ohio Sharon, Pa.			7.65 *C10*	6.725 *C10,*	9.025 *C10*		5.30 *R3,S1*		7.50 *S1*	7.95 *R3, S1*	
	Owensboro, Ky.	5.675 *G5*			6.725 *G5*							
	Pittsburgh, Midland, Donora, Aliquippa, Pa.	5.675 *U1,J3*	5.675 *U1,J3*	7.65 *A5,B4, R3,J3,C11, W10,S9,C8, M9*	6.725 *U1,J3, C11,B7*	9.025 *A5, W10,R3,S9, C11,C8,M9*	8.30 *U1,J3*	5.30 *U1,J3*	6.375 *U1,J3*	7.50 *U1, J3,B7*	7.95 *U1, J3,B7*	8.00 *A5, J3,P6*
	Portsmouth, Ohio											8.00 *P7*
	Weirton, Wheeling, Follansbee, W. Va.							5.30 *W5*				
	Youngstown, Ohio	5.675 *U1,R3, Y1*	5.675 *U1,R3, Y1*	7.65 *A1,Y1, F2*	6.725 *U1,Y1*	9.025 *Y1,F2*	8.30 *U1,Y1*	5.30 *U1, R3,Y1*		7.50 *Y1*	7.95 *U1,Y1*	8.00 *Y1*
WEST	Emeryville, Fontana, Cal.	6.425 *J5* 6.375 *K1*	6.425 *J5* 6.375 *K1*		7.775 *K1*		9.00 *K1*	6.10 *K1*		8.30 *K1*	8.75 *K1*	
	Geneva, Utah							5.30 *C7*			7.95 *C7*	
	Kansas City, Mo.	5.925 *S2*	5.925 *S2*		6.975 *S2*		8.55 *S2*					8.25 *S2*
	Los Angeles, Torrance, Cal.	6.375 *C7,B2*	6.375 *C7,B2*	9.10 *R3,P14, S12*	7.775 *B2*	11.00 *P14, S12*	8.625 *B2*					8.95 *B2*
	Minnequa, Colo.	6.125 *C6*	6.125 *C6*					6.15 *C6*				8.25 *C6*
	Portland, Ore.	6.425 *O2*	6.425 *O2*									
	San Francisco, Niles, Pittsburg, Cal.	6.375 *C7* 6.425 *B2*	6.375 *C7* 6.425 *B2*				8.675 *B2*					8.95 *C7,C6*
	Seattle, Wash.	6.425 *B2,N6, A10*	6.425 *B2,A10*				8.675 *B2*	6.20 *B2*		8.40 *B2*	8.85 *B2*	
SOUTH	Atlanta, Ga.	5.875 *A8*	5.675 *A8*									8.00 *A8*
	Fairfield City, Ala. Birmingham, Ala.	5.675 *T2,R3, C16*	5.675 *T2,R3, C16*	8.25 *C16*			8.30 *T2*	5.30 *T2,R3*			7.95 *T2*	8.00 *T2,R3*
	Houston, Ft. Worth, Lone Star, Texas	5.925 *S2*	5.925 *S2*		6.975 *S2*		8.55 *S2*	5.40 *S2*		7.60 *S2*	8.05 *S2*	8.25 *S2*

† Merchant Quality—Special Quality 35¢ higher. (Effective May 25, 1959) * Special Quality.

STEEL PRICES

Key to Steel Producers

With Principal Offices

A1 Acme Steel Co., Chicago
A2 Alan Wood Steel Co., Conshohocken, Pa.
A3 Allegheny Ludlum Steel Corp., Pittsburgh
A4 American Cladmetals Co., Carnegie, Pa.
A5 American Steel & Wire Div., Cleveland
A6 Angel Nail & Chaplet Co., Cleveland
A7 Armco Steel Corp., Middletown, Ohio
A8 Atlantic Steel Co., Atlanta, Ga.
A9 Acme-Newport Steel Co., Newport, Ky.
A10 Alaska Steel Mills, Inc., Seattle, Wash.

B1 Babcock & Wilcox Tube Div., Beaver Falls, Pa.
B2 Bethlehem Pacific Coast Steel Corp., San Francisco
B3 Bethlehem Steel Co., Bethlehem, Pa.
B4 Blair Strip Steel Co., New Castle, Pa.
B5 Bliss & Laughlin, Inc., Harvey, Ill.
B6 Brook Plant, Wickwire-Spencer Steel Div., Birdsboro, Pa.
B7 A. M. Byers, Pittsburgh
B8 Braeburn Alloy Steel Corp., Braeburn, Pa.

C1 Calstrip Steel Corp., Los Angeles
C2 Carpenter Steel Co., Reading, Pa.
C4 Claymont Products Dept., Claymont, Del.
C6 Colorado Fuel & Iron Corp., Denver
C7 Columbia Geneva Steel Div., San Francisco
C8 Columbia Steel & Shafting Co., Pittsburgh
C9 Continental Steel Corp., Kokomo, Ind.
C10 Copperweld Steel Co., Pittsburgh, Pa.
C11 Crucible Steel Co. of America, Pittsburgh
C13 Cuyahoga Steel & Wire Co., Cleveland
C14 Compressed Steel Shafting Co., Readville, Mass.
C15 G. O. Carlson, Inc., Thorndale, Pa.
C16 Connors Steel Div., Birmingham
C18 Cold Drawn Steel Plant, Western Automatic Machine Screw Co., Elyria, O.

D1 Detroit Steel Corp., Detroit
D2 Driver, Wilbur B., Co., Newark, N. J.
D3 Driver Harris Co., Harrison, N. J.
D4 Dickson Weatherproof Nail Co., Evanston, Ill.

E1 Eastern Stainless Steel Corp., Baltimore
E2 Empire-Reeves Steel Corp., Mansfield, O.
E3 Enamel Products & Plating Co., McKeesport, Pa.

F1 Firth Sterling, Inc., McKeesport, Pa.
F2 Fitzsimons Steel Corp., Youngstown
F3 Follansbee Steel Corp., Follansbee, W. Va.

G2 Granite City Steel Co., Granite City, Ill.
G3 Great Lakes Steel Corp., Detroit
G4 Greer Steel Co., Dover, O.
G5 Green River Steel Corp., Owensboro, Ky.

H1 Hanna Furnace Corp., Detroit

I2 Ingersoll Steel Div., Chicago
I3 Inland Steel Co., Chicago
I4 Interlake Iron Corp., Cleveland

J1 Jackson Iron & Steel Co., Jackson, O.
J2 Jessop Steel Corp., Washington, Pa.
J3 Jones & Laughlin Steel Corp., Pittsburgh
J4 Joslyn Mfg. & Supply Co., Chicago
J5 Judson Steel Corp., Emeryville, Calif.

K1 Kaiser Steel Corp., Fontana, Calif.
K2 Keystone Steel & Wire Co., Peoria
K3 Koppers Co., Granite City, Ill.
K4 Keystone Drawn Steel Co., Spring City, Pa.

L1 Laclede Steel Co., St. Louis
L2 La Salle Steel Co., Chicago
L3 Lone Star Steel Co., Dallas
L4 Lukens Steel Co., Coatesville, Pa.

M1 Mahoning Valley Steel Co., Niles, O.
M2 McLouth Steel Corp., Detroit
M3 Mercer Tube & Mfg. Co., Sharon, Pa.
M4 Mid States Steel & Wire Co., Crawfordsville, Ind.
M6 Mystic Iron Works, Everett, Mass.
M7 Milton Steel Products Div., Milton, Pa.
M8 Mill Strip Products Co., Evanston, Ill.
M9 Moltrup Steel Products Co., Beaver Falls, Pa.

N1 National Supply Co., Pittsburgh
N2 National Tube Div., Pittsburgh
N4 Northwestern Steel & Wire Co., Sterling, Ill.
N6 Northwest Steel Rolling Mills, Seattle
N7 Newman Crosby Steel Co., Pawtucket, R. I.
N8 Carpenter Steel of New England, Inc., Bridgeport, Conn.
N9 Nelson Steel & Wire Co.

O1 Oliver Iron & Steel Co., Pittsburgh
O2 Oregon Steel Mills, Portland

P1 Page Steel & Wire Div., Monessen, Pa.
P2 Phoenix Steel Corp., Phoenixville, Pa.
P3 Pilgrim Drawn Steel Div., Plymouth, Mich.
P4 Pittsburgh Coke & Chemical Co., Pittsburgh
P5 Pittsburgh Screw & Bolt Co., Pittsburgh
P6 Pittsburgh Steel Co., Pittsburgh
P7 Portsmouth Div., Detroit Steel Corp., Detroit
P8 Plymouth Steel Co., Detroit
P9 Pacific States Steel Co., Niles, Cal.
P10 Precision Drawn Steel Co., Camden, N. J.
P11 Production Steel Strip Corp., Detroit
P13 Phoenix Mfg. Co., Joliet, Ill.
P14 Pacific Tube Co.
P15 Philadelphia Steel and Wire Corp.

R1 Reeves Steel & Mfg. Div., Dover, O.
R2 Reliance Div., Eaton Mfg. Co., Massillon, O.
R3 Republic Steel Corp., Cleveland
R4 Roebling Sons Co., John A., Trenton, N. J.
R5 Jones & Laughlin Steel Corp., Stainless and Strip Div.
R6 Rodney Metals, Inc., New Bedford, Mass.
R7 Rome Strip Steel Co., Rome, N. Y.

S1 Sharon Steel Corp., Sharon Pa.
S2 Sheffield Steel Div., Kansas City
S3 Shenango Furnace Co., Pittsburgh
S4 Simonds Saw and Steel Co., Fitchburg, Mass.
S5 Sweet's Steel Co., Williamsport, Pa.
S7 Stanley Works, New Britain, Conn.
S8 Superior Drawn Steel Co., Monaca, Pa.
S9 Superior Steel Div. of Copperweld Steel Co., Carnegie, Pa.
S10 Seneca Steel Service, Buffalo
S11 Southern Electric Steel Co., Birmingham
S12 Sierra Drawn Steel Corp., Los Angeles, Calif.
S13 Seymour Mfg. Co., Seymour, Conn.

T1 Tonawanda Iron Div., N. Tonawanda, N. Y.
T2 Tennessee Coal & Iron Div., Fairfield
T3 Tennessee Products & Chem. Corp., Nashville
T4 Thomas Strip Div., Warren, O.
T5 Timken Steel & Tube Div., Canton, O.
T7 Texas Steel Co., Fort Worth
T8 Thompson Wire Co., Boston

U1 United States Steel Corp., Pittsburgh
U2 Universal-Cyclops Steel Corp., Bridgeville, Pa.
U3 Ulbrich Stainless Steels, Wallingford, Conn.
U4 U. S. Pipe & Foundry Co., Birmingham

W1 Wallingford Steel Co., Wallingford, Conn.
W2 Washington Steel Corp., Washington, Pa.
W3 Weirton Steel Co., Weirton, W. Va.
W4 Wheatland Tube Co., Wheatland, Pa.
W5 Wheeling Steel Corp., Wheeling, W. Va.
W6 Wickwire Spencer Steel Div., Buffalo
W7 Wilson Steel & Wire Co., Chicago.
W8 Wisconsin Steel Div., S. Chicago, Ill.
W9 Woodward Iron Co., Woodward, Ala.
W10 Wyckoff Steel Co., Pittsburgh
W12 Wallace Barnes Steel Div., Bristol, Conn.

Y1 Youngstown Sheet & Tube Co., Youngstown, O.

PIPE AND TUBING

Base discounts (pct) f.o.b. mills. Base price about $200 per net ton.

	BUTTWELD														SEAMLESS							
	½ In.		¾ In.		1 In.		1¼ In.		1½ In.		2 In.		2½-3 In.		2 In.		2½ In.		3 In.		3½-4 In.	
STANDARD T. & C.	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**	**Blk.**	**Gal.**
Sparrows Pt. *B3*	0.25	+15.0	3.25	+11.0	6.75	+6.50	9.25	+5.75	9.75	+4.75	10.25	+4.25	11.75	+4.50								
Youngstown *R3*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50								
Fontana *K1*	+10.75	+26.00	+7.75	+22.00	+4.25	+17.50	+1.75	+16.75	+1.25	+15.75	+0.75	+15.25	0.75	+15.50								
Pittsburgh *J3*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50	+12.25	+27.25	+5.75	+22.50	+3.25	+20.0	+1.75	+18.50
Alton, Ill. *L1*	0.25	+15.0	3.25	+11.0	6.75	+6.50	9.25	+5.75	9.75	+4.75	10.25	+4.25	11.75	+4.50								
Sharon *M3*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50								
Fairless *N2*	0.25	+15.0	3.25	+11.0	6.75	+6.50	9.25	+5.75	9.75	+4.75	10.25	+4.25	11.75	+4.50								
Pittsburgh *N1*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50	+12.25	+27.25	+5.75	+22.50	+3.25	+20.0	+1.75	+18.50
Wheeling *W5*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50								
Wheatland *W4*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50								
Youngstown *Y1*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50	+12.25	+27.25	+5.75	+22.50	+3.25	+20.0	+1.75	+18.50
Indiana Harbor *Y1*	1.25	+14.0	4.25	+10.0	7.75	+5.50	10.25	+4.75	10.75	+3.75	11.25	+3.25	12.75	+3.50								
Lorain *N2*	2.25	+13.0	5.25	+9.0	8.75	+4.50	11.25	+3.75	11.75	+2.75	12.25	+2.25	13.75	+2.50	+12.25	+27.25	+5.75	+22.50	+3.25	+20.0	+1.75	+18.50
EXTRA STRONG PLAIN ENDS																						
Sparrows Pt. *B3*	4.75	+9.0	8.75	+5.0	11.75	+0.50	12.25	+1.75	12.75	+0.75	13.25	+0.25	13.75	+1.50								
Youngstown *R3*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Fairless *N2*	4.75	+9.0	8.75	+5.0	11.75	+0.50	12.25	+1.75	12.75	+0.75	13.25	+0.25	13.75	+1.50								
Fontana *K1*	+6.25		+2.25		0.75		1.25		1.75		2.25		2.75									
Pittsburgh *J3*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	+10.75	+24.75	+3.25	+19.0	+0.75	+16.50	4.25	+11.50
Alton, Ill. *L1*	4.75	+9.0	8.75	+5.0	11.75	+0.50	12.25	+1.75	12.75	+0.75	13.25	+0.25	13.75	+1.50								
Sharon *M3*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Pittsburgh *N1*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	+10.75	+24.75	+3.25	+19.0	+0.75	+16.50	4.25	+11.50
Wheeling *W5*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Wheatland *W4*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50								
Youngstown *Y1*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	+10.75	+24.75	+3.25	+19.0	+0.75	+16.50	4.25	+11.50
Indiana Harbor *Y1*	5.75	+8.0	9.75	+4.0	12.75	0.50	13.25	+0.75	13.75	0.25	14.25	0.75	14.75	+0.50								
Lorain *N2*	6.75	+7.0	10.75	+3.0	13.75	1.50	14.25	0.25	14.75	1.25	15.25	1.75	15.75	0.50	+10.75	+24.75	+3.25	+19.0	+0.75	+16.50	4.25	+11.50

Threads only, buttweld and seamless, 2¼ pt. higher discount. Plain ends, buttweld and seamless, 3-in. and under, 5½ pt. higher discount.
Galvanized discounts based on zinc price range of over 9¢ to 11¢ per lb. East St. Louis. For each 2¢ change in zinc, discounts vary as follows: ½, ¾ and 1-in., 2 pt.; 1¼, 1½ and 2-in., 1½ pt.; 2½ and 3-in., 1 pt., e.g., zinc price range of over 13¢ to 15¢ would lower discounts on 2½ and 3-in. pipe by 2 points; zinc price in range over 7¢ to 9¢ would increase discounts. East St. Louis zinc price now 11.00¢ per lb.

(Effective May 25, 1959)

TOOL STEEL

F.o.b. mill

W	Cr	V	Mo	Co	per lb	SAE
18	4	1	—	—	$1.84	T-1
18	4	1	—	5	2.545	T-4
18	4	2	—	—	2.005	T-2
1.5	4	1.5	8	—	1.20	M-1
6	4	3	6	—	1.59	M-3
6	4	2	5	—	1.345	M-2
High-carbon chromium					.955	D-3, D-5
Oil hardened manganese					.505	O-2
Special carbon					.38	W-1
Extra carbon					.38	W-1
Regular carbon					.325	W-1

Warehouse prices on and east of Mississippi are 4¢ per lb higher. West of Mississippi, 6¢ higher.

CLAD STEEL

Base prices, cents per lb f.o.b.

	Cladding	Plate (*L4, C4, A3, J2*) 10 pct	15 pct	20 pct	Sheet (*I2*) 20 pct
Stainless Type	302	.....	.....	.....	37.50
	304	28.80	31.55	34.30	40.00
	316	42.20	46.25	50.25	58.75
	321	34.50	37.75	41.05	47.25
	347	40.80	44.65	48.55	57.00
	405	24.60	26.90	29.25	.....
	410	22.70	24.85	27.00	.....
	430	23.45	25.65	27.90	.....

CR Strip (S9) Copper, 10 pct, 2 sides, 43.15; 1 side, 36.20.

RAILS, TRACK SUPPLIES

F.o.b. Mill Cents Per Lb	No. 1 Std. Rails	Light Rails	Joint Bars	Track Spikes	Tie Plates	Track Bolts Untreated
Bessemer *U1*	5.75	6.725	7.25	.....	.....	.....
Cleveland *R3*	.....	.....	.....	.....	.....	15.35
So. Chicago *R3*	.....	.....	.....	10.10	.....	.....
Ensley *T2*	5.75	6.725	.....	.....	.....	.....
Fairfield *T2*	.....	6.725	.....	10.10	6.875	.....
Gary *U1*	5.75	.....	.....	.....	6.875	.....
Ind. Harbor *I3*	.....	.....	.....	10.10	.....	.....
Johnstown *B3*	.....	6.725	.....	.....	.....	.....
Joliet *U1*	.....	.....	7.25	.....	.....	.....
Kansas City *S2*	.....	.....	.....	10.10	.....	15.35
Lackawanna *B3*	5.75	6.725	7.25	.....	6.875	.....
Lebanon *B3*	.....	.....	7.25	.....	.....	15.35
Minnequa *C6*	5.75	7.225	7.25	10.10	6.875	15.35
Pittsburgh *P5*	.....	.....	.....	.....	.....	14.75
Pittsburgh *J3*	.....	.....	.....	10.10	.....	.....
Seattle *B2*	.....	.....	.....	.....	6.75	15.85
Steelton *B3*	5.75	.....	7.25	.....	6.875	.....
Struthers *Y1*	.....	.....	.....	10.10	.....	.....
Torrance *C7*	.....	.....	.....	.....	6.75	.....
Williamsport *S5*	.....	6.725	.....	.....	.....	.....
Youngstown *R3*	.....	.....	.....	10.10	.....	.....

COKE

	Net-Ton
Furnace, beehive (f.o.b.)	
Connellsville, Pa.	$14.50 to $15.50
Foundry, beehive (f.o.b.)	$18.50
Foundry oven coke	
Buffalo, del'd	$33.25
Detroit f.o.b.	32.00
New England, del'd	33.55
New Haven, f.o.b.	31.00
Kearney, N. J., f.o.b.	31.25
Philadelphia, f.o.b.	31.00
Swedeland, Pa., f.o.b.	31.00
Painesville, Ohio, f.o.b.	34.35
Erie, Pa., f.o.b.	32.00
Cleveland, del'd	34.19
Cincinnati, del'd	32.84
St. Paul, f.o.b.	31.25
St. Louis, f.o.b.	33.00
Birmingham, f.o.b.	30.35
Milwaukee, f.o.b.	32.00
Neville Is., Pa.	30.75

LAKE SUPERIOR ORES

51.50% Fe natural, delivered lower Lake ports. Interim prices for 1959 season. Freight changes for seller's account.

	Gross Ton
Openhearth lump	$12.70
Old range, bessemer	11.85
Old range, nonbessemer	11.70
Mesabi, bessemer	11.60
Mesabi, nonbessemer	11.45
High phosphorus	11.45

ELECTRICAL SHEETS

22-Gage F.o.b. Mill Cents Per Lb	Hot-Rolled (Cut Lengths)*	Cold-Reduced (Coiled or Cut Length) Semi-Processed	Fully Processed
Field	.....	9.875	.....
Armature	11.70	11.20	11.70
Elect.	12.40	11.90	12.40
Special Motor	.....	12.475	.....
Motor	13.55	13.05	13.55
Dynamo	14.65	14.15	14.65
Trans. 72	15.70	15.20	15.70
Trans. 65	16.30	Grain Oriented	
Trans. 58	16.80	Trans. 80	19.70
Trans. 52	17.85	Trans. 73	20.20
		Trans. 66	20.70

Producing points: Aliquippa (*J3*); Beech Bottom (*W5*); Brackenridge (*A3*); Granite City (*G2*); Indiana Harbor (*I3*); Mansfield (*E2*); Newport, Ky. (*A9*); Niles, O. (*S1*); Vandergrift (*U1*); Warren, O. (*R3*); Zanesville, Butler (*A7*).

ELECTRODES

Cents per lb. f.o.b. plant, threaded, with nipples, unboxed.

GRAPHITE Diam. (In.)	Length (In.)	Price	CARBON* Diam. (In.)	Length (In.)	Price
24	84	27.25	40	100,110	12.50
20	72	26.50	35	110	11.20
18	72	27.50	30	110	11.70
14	72	27.25	24	72	11.95
12	72	28.25	20	90	11.55
10	60	29.50	17	72	12.10
10	48	30.00	14	72	12.55
7	60	29.75	10	60	13.80
6	60	33.25	8	60	14.25
4	40	37.00			
3	40	39.25			
2½	30	41.50			
2	24	64.00			

* Prices shown cover carbon nipples.

REFRACTORIES

Fire Clay Brick

Carloads per 1000

Super duty, Mo., Pa., Md., Ky.	$185.00
High duty (except Salina, Pa., add $5.00)	140.00
Medium duty	125.00
Low duty (except Salina, Pa., add $2.00)	103.00
Ground fire clay, net ton, bulk	22.50

Silica Brick

Mt. Union, Pa., Ensley, Ala.	$158.00
Childs, Hays, Latrobe, Pa.	163.00
Chicago District	168.00
Western Utah	183.00
California	165.00
Super Duty Hays, Pa., Athens, Tex., Windham, Warren, O., Morrisville	163.00-168.00
Silica cement, net ton, bulk, Latrobe	29.75
Silica cement, net ton, bulk, Chicago	26.75
Silica cement, net ton, bulk, Ensley, Ala.	27.75
Silica cement, net ton, bulk, Mt. Union	25.75
Silica cement, net ton, bulk, Utah and Calif.	39.00

Chrome Brick

Per net ton

Standard chemically bonded, Balt.	$109.00
Standard chemically bonded, Curtiner, Calif.	119.00
Burned, Balt.	103.00

Magnesite Brick

Standard, Baltimore	$140.00
Chemically bonded, Baltimore	119.00

Grain Magnesite

St. ⅝ to ½-in. grains

Domestic, f.o.b. Baltimore in bulk.	$73.00
Domestic, f.o.b. Chewalah, Wash., Luning, Nev. in bulk	46.00
in sacks	52.00-54.00

Dead Burned Dolomite

Per net ton

F.o.b. bulk, producing points in:	
Pa., W. Va., Ohio	$16.75
Missouri Valley	15.60
Midwest	17.00

(Effective May 25, 1959)

MERCHANT WIRE PRODUCTS

F.o.b. Mill	Standard Q Coated Nails Col	Woven Wire Fence Col	"T" Fence Posts Col	Single Loop Bale Ties Col	Galv. Barbed and Twisted Barbless Wire Col	Merch. Wire Ann'ld ¢/lb.	Merch. Wire Galv. ¢/lb.
Alabama City *R3*	173	187	...	212	193	9.00	9.55
Aliquippa *J3***	173	190	...		190	9.00	9.675
Atlanta *A8***	175	192	...	214	198	8.75	9.425
Bartonville *K2***	175	192	178	214	198	9.10	9.775
Buffalo *W6*	.....	.....	.....	.....	.....	9.00	9.55*
Chicago *N4***	177	190	172	212	196	9.00	9.70
Chicago *R3*	.....	.....	.....	.....	.....	9.00	9.55
Cleveland *A6*	.....	.....	.....	.....	.....	.....	.....
Cleveland *A5*	.....	.....	.....	.....	.....	9.00	.....
Crawf'dsv. *M4***	175	192	...	214	198	9.10	9.775
Donora, Pa. *A5*	173	187	...	212	193	9.00	9.55
Duluth *A5*	173	187	...	212	193	9.00	9.55
Fairfield, Ala. *T2*	173	187	...	212	193	9.00	9.55
Galveston *D4*	9.10‡	.....	.....	.....	.....	.....	.....
Houston *S2*	178	192	...	217	198	9.25	9.80†
Jacksonville *M4*	184-1	197	...	219	203	9.10	9.775
Johnstown *B3***	173	190	174	...	196	9.00	9.675
Joliet, Ill. *A5*	173	187	...	212	193	9.00	9.55
Kokomo *C9*	175	189	...	214	195*	9.10	9.65*
L. Angeles *B2****	.....	.....	.....	.....	.....	9.95	10.625
Kansas City *S2**	178	192	...	217	198*	9.25	9.80†
Minnequa *C6*	178	192	182	217	198†	9.25	9.80†
Monessen *P6*	.....	.....	.....	.....	193	8.65	9.325
Palmer, Mass. *W6*	.....	.....	.....	.....	.....	9.30	9.85*
Pittsburg, Cal. *C7*	192	210	...	...	213	9.60	10.15
Rankin, Pa. *A5*	173	187	...	...	193	9.00	9.55
So. Chicago *R3*	173	187	...	...	193	8.65	9.20
S. San Fran. *C6*	.....	.....	.....	236	.....	9.95	10.50†
SparrowsPt. *B3***	175	.....	.....	214	198	9.10	9.775
Struthers, O. *Y1**	.....	.....	.....	.....	.....	8.65	9.20
Worcester *A5*	179	.....	.....	.....	.....	9.30	9.85
Williamsport *S5*	.....	.....	.....	.....	.....	.....	.....

* Zinc less than .10¢. *** .10¢ zinc.
** 11-12¢ zinc. † Plus zinc extras.
‡ Wholesalers only.

C-R SPRING STEEL

Cents Per Lb F.o.b. Mill	CARBON CONTENT 0.26-0.40	0.41-0.60	0.61-0.80	0.81-1.05	1.06-1.35
Anderson, Ind. *G4*	8.95	10.40	12.60	15.60	18.55
Baltimore, Md. *T8*	9.50	10.70	12.90	15.90	18.85
Bristol, Conn. *W12*	.....	10.70	12.90	16.10	19.30
Boston *T8*	9.50	10.70	12.90	15.90	18.85
Buffalo, N. Y. *R7*	8.95	10.40	12.60	15.60	18.55
Carnegie, Pa. *S9*	8.95	10.40	12.60	15.60	18.55
Cleveland *A5*	8.95	10.40	12.60	15.60	18.55
Dearborn *S1*	9.05	10.50	12.70	.....	.....
Detroit *D1*	9.05	10.50	12.70	15.70	.....
Detroit *D2*	9.05	10.50	12.70	.....	.....
Dover, O. *G4*	8.95	10.40	12.60	15.60	18.55
Evanston, Ill. *M8*	9.05	10.40	12.60	.....	.....
Franklin Park, Ill. *T8*	9.05	10.40	12.60	15.60	18.55
Harrison, N. J. *C11*	.....	.....	12.90	16.10	19.30
Indianapolis *R5*	9.10	10.55	12.60	15.60	18.55
Los Angeles *C1*	11.15	12.60	14.80	17.80	.....
New Britain, Conn. *S7*	9.40	10.70	12.90	15.90	18.85
New Castle, Pa. *B4*	8.95	10.40	12.60	15.60	.....
New Haven, Conn. *D1*	9.40	10.70	12.90	15.90	.....
Pawtucket, R. I. *N7*	9.50	10.70	12.90	15.90	18.85
Riverdale, Ill. *A1*	9.05	10.40	12.60	15.60	18.55
Sharon, Pa. *S1*	8.95	10.40	12.60	15.60	18.55
Trenton, *R4*	.....	10.70	12.90	16.10	19.30
Wallingford *W1*	9.40	10.70	12.90	15.90	18.55
Warren, Ohio *T4*	8.95	10.40	12.60	15.60	18.75
Worcester, Mass. *A5*	9.50	10.70	12.90	15.90	18.85
Youngstown *R5*	9.10	10.55	12.60	15.60	18.55

BOILER TUBES

$ per 100 ft. carload lots cut 10 to 24 ft. F.o.b. Mill	Size OD-In.	B.W. Ga.	Seamless H.R.	Seamless C.D.	Elec. Weld H.R.
Babcock & Wilcox	2	13	40.28	47.21	35.22
	2½	12	54.23	63.57	47.43
	3	12	62.62	73.40	54.77
	3½	11	73.11	85.70	63.93
	4	10	97.08	113.80	85.53
National Tube	2	13	40.28	47.21	35.22
	2½	12	54.23	63.57	47.43
	3	12	62.62	73.40	54.77
	3½	11	73.11	85.70	63.93
	4	10	97.08	113.80	85.53
Pittsburgh Steel	2	13	40.28	47.21	.....
	2½	12	54.23	63.57	.....
	3	12	62.62	73.40	.....
	3½	11	73.11	85.70	.....
	4	10	97.08	113.80	.....

METAL POWDERS

Cents per lb, minimum truckload, delivered E. of Miss. River, unless otherwise noted.

Iron Powders

Compacting Powders

Electrolytic, imported, f.o.b.	29.50 to 33.00
Electrolytic, domestic	34.50
Sponge	11.25
Atomized	11.25
Hydrogen Reduced	11.25 to 12.00
Carbonyl	88.00
Welding Powders*	8.10
Cutting and Scarfing Powders*	9.10

Copper Powders

Electrolytic, domestic	41.00
Precipitated	40.50 to 45.00
Atomized	39.80 to 48.30
Hydrogen reduced, f.o.b.	43.25
Bronze	47.20 to 51.50
Chromium, electrolytic	$5.00
Lead	19.00
Manganese, f.o.b.	42.00
Molybdenum	$3.60 to $3.95
Nickel	$1.05 to $1.03
Nickel Silver	53.50
Nickel Steel	13.00
Solder	13¢ plus metal value
Stainless Steel, 302	$1.07
Stainless Steel, 316	$1.26
Steel, atomized, prealloyed, 4600 series	14.00 plus metal value
Tin	14¢ plus metal value
Titanium, 99.25+%, per lb., f.o.b.	$11.25
Tungsten	$3.15 (nominal)

* F.O.B., shipping point.

BOLTS, NUTS, RIVETS, SCREWS

(Base discount, f.o.b. mill)

Pct. Discounts

Bolts	1-4 Containers	5 Containers	20,000 Lb.	40,000 Lb.
Machine				
½" and smaller x 3" and shorter	55	57	61	62
⅝" diam. x 3" and shorter	47	49½	54	55
¾" thru 1" diam x 6" and shorter	37	39½	45	46
¾" thru 1" diam. longer than 6" and 1½" and larger x all lengths	31	34	40	41
Rolled thread, ½" and smaller x 3" and shorter	55	57	61	62
Carriage, lag, plow, tap, blank, step, elevator and fitting up bolts ½" and smaller x 6" and shorter	48	50½	55	56

Note: Add 25 pct for less than container quantity. Distributor prices are 5 pct less on bolts and square nuts.

Nuts, Hex, HP reg. & hvy.	Full case or Keg price
¾ in. or smaller	62
⅞ in. to 1½ in. inclusive	56
1⅝ in. and larger	51½
C. P. Hex, reg. & hvy.	
¾ in. or smaller	62
⅞ in. to 1½ in. inclusive	56
1⅝ in. and larger	51½
Hot Galv. Hex Nuts (All Types)	
¾ in. and smaller	41
Semi-finished Hex Nuts	
¾ in. or smaller	62
⅞ in. to 1½ in. inclusive	56
1⅝ in. and larger	51½

(Add 25 pct for broken case or keg quantities)

Finished

⅞ in. and smaller 65

Rivets *Base per 100 lb*

½ in. and larger $12.85

Pct. Off List

7/16 in. and smaller 15

Cap Screws *Discount (Packages)*

Full Finished H. C. Heat Treat

New std. hex head, packaged — Full Case

	C-1018 Steel Full-Finished Cartons	Bulk
⅛" diam. and smaller x 6" and shorter	54	42
¾", ⅞", and 1" diam. x 6" and shorter	38	23
⅝" diam. and smaller x longer than 6"	..	..
¾", ⅞", and 1" diam. x longer than 6"	..	..
¼" through ⅝" dia. x 6" and shorter	59	48
¾" through 1" dia. x 6" and shorter	45	32

Minimum quantity—¼" through ⅜" diam., 15,000 pieces; 7/16" through ⅝" diam., 5,000 pieces; ¾" through 1" diam., 2,000 pieces.

Machine Screws & Stove Bolts

	Discount Mach. Screws	Stove Bolts
Plain Finish Cartons	60	60
Bulk		
Quantity		
To ¼" diam. incl. — 25,000-and over	60	..
5/16 to ½" diam. incl. — 15,000-200,000	60	..

Machine Screws & Stove Bolt Nuts

	Discount Hex	Square
In Cartons	16	19
Quantity		
In Bulk		
⅜" diam. & smaller — 25,000-and over	15	16

ELECTROPLATING SUPPLIES

Anodes

(Cents per lb, frt allowed in quantity)

Copper	
Rolled elliptical, 18 in. or longer, 5000 lb lots	46.00
Electrodeposited	38.00
Brass, 80-20, ball anodes, 2000 lb or more	51.50
Zinc, ball anodes, 2000 lb lots (for elliptical add 1¢ per lb)	18.00
Nickel, 99 pct plus, rolled carton, 5000 lb	1.0225
(Rolled depolarized add 3¢ per lb)	
Cadmium	1.20

Tin, ball anodes $1.05 per lb (approx.).

Chemicals

(Cents per lb, f.o.b. shipping point)

Copper cyanide, 100 lb drum	65.90
Copper sulphate, 100 lb bags, per cwt.	22.75
Nickel salts, single, 100 lb bags	36.00
Nickel chloride, freight allowed, 100 lb	45.00
Sodium cyanide, domestic, f.o.b. N. Y., 200 lb drums	23.70
(Philadelphia price 24.00)	
Zinc cyanide, 100 lb	60.75
Potassium cyanide, 100 lb drum N. Y.	45.50
Chromic acid, flake type, 10,000 lb or more	30.44

CAST IRON WATER PIPE INDEX

Birmingham	125.8
New York	138.5
Chicago	140.9
San Francisco-L. A.	148.6

Dec. 1955, value, Class B or heavier 5 in. or larger, bell and spigot pipe. Explanation: p. 57, Sept. 1, 1955, issue. Source: U. S. Pipe and Foundry Co.

STEEL SERVICE CENTERS

Metropolitan Price, dollars per 100 lb.

Cities	City Delivery‡ Charge	Sheets: Hot-Rolled (18 ga. & hvr.)	Sheets: Cold-Rolled (15 gage)	Sheets: Galvanized (10 gage)††	Strip: Hot-Rolled	Plates	Shapes: Standard Structural	Bars: Hot-Rolled (merchant)	Bars: Cold-Finished	Alloy Bars: Hot-Rolled 4615 As rolled	Alloy Bars: Hot-Rolled 4140 Annealed	Alloy Bars: Cold-Drawn 4615 As rolled	Alloy Bars: Cold-Drawn 4140 Annealed
Atlanta		8.59	9.87	10.13	8.91	9.29	9.40	9.39	13.24*	.....	.....	.....	.....
Baltimore	$.10	8.65	9.35	9.09	9.15	9.10	9.65	9.55	11.80*	16.28	15.28	19.82	19.08
Birmingham		8.18	9.45	10.46	8.51	8.89	9.00	8.99	.....	.....	.....	.....	.....
Boston**	.10	10.22[1]	11.27[2]	12.07[3]	12.17[4]	10.42[5]	10.72[6]	10.34[7]	13.45*	16.79	15.79	20.29	19.54
Buffalo	.15	8.55	9.75	11.00	8.90	9.35	9.40	9.30	11.60*	16.34	15.55	19.01	19.30
Chicago	.15	8.40	9.60	11.05	8.66	9.04	9.15	9.14	9.30	16.20	15.20	19.70	18.95
Cincinnati	.15	8.58	9.66	11.10	8.98	9.42	9.71	9.46	11.68*	16.52	15.52	20.02	19.27
Cleveland**	.15	8.32[1]	9.61[2]	11.15[3]	10.36[4]	8.76[5]	9.63[6]	9.36[7]	11.40*	16.31	15.31	19.81	19.06
Denver	.20	9.60	11.84	12.94	9.63	9.96	10.04	10.00	11.19	.....	.....	.....	20.84
Detroit	.15	8.66	9.86	11.40	9.03	9.41	9.71	9.45	9.66	15.46	15.48	18.81	19.23
Houston		8.10	8.60	.....	8.15	8.45	8.05	8.10	11.60	16.20	15.25	19.65	18.95
Kansas City	.15	9.02	10.27	11.37	9.33	9.71	9.82	9.51	10.22	16.87	15.87	20.37	19.62
Los Angeles		8.70[8]	11.20-11.80	12.20	9.15	9.10	9.00	9.10	12.95	17.30	16.35	21.30	20.60
Memphis	.15	8.55	9.80	.....	8.60	8.93	9.01	8.97	12.11*	.....	.....	.....	.....
Milwaukee	.15	8.54	9.74	11.19	8.80	9.18	9.37	9.28	9.54	16.34	15.34	19.84	19.09
New York	.10	9.27	10.59	11.40	9.74	9.87	9.84	10.09	13.35*	16.16	15.60	20.10	19.35
Norfolk	.20	8.20	.....	.....	8.90	8.65	9.20	8.90	10.70	.....	.....	.....	.....
Philadelphia	.10	8.30	9.35	10.71	9.35	9.25	9.20	9.50	12.05*	16.58	15.58	20.08	19.33
Pittsburgh**	.15	8.32[1]	9.61[2]	10.95[3]	10.36[4]	8.52[5]	9.24[6]	8.62[7]	11.40*	16.20	15.20	19.70	18.95
Portland		10.00	11.75	13.30	11.95	11.50	11.10	9.85	15.30*	18.50	17.45	20.75	20.25
San Francisco	.10	9.75	11.20[9]	11.50	9.85	10.10	9.95	10.25	13.70	17.05	16.35	21.05	20.60
Seattle		10.30	11.55	12.50	10.25	10.10	10.20	10.50	14.70	17.15	16.80	20.65	20.60
Spokane	.15	10.45	11.70	10.90	10.65	10.25	10.35	11.15	14.85	17.75	16.95	21.55	20.75
St. Louis	.15	8.78	9.98	11.43	9.04	9.42	9.63	9.52	9.93	16.58	15.58	20.08	19.33
St. Paul	.15	8.94	10.19	11.64	8.99	9.45	9.53	9.70	10.16	.....	15.41	.....	19.21

Base Quantities (Standard unless otherwise keyed): Cold finished bars: 2000 lb or over. Alloy bars: 1000 to 1999 lb. All others: 2000 to 4999 lb. All HR products may be combined for quantity. All galvanized sheets may be combined for quantity. CR sheets may be combined with each other for quantity. ** Prices based on 2000 lb item quantities except for galv. sheet, c-f and alloy bars.

†† 10¢ zinc. ‡ Deduct for country delivery. * C1018—1 in. rounds. [1] 10 ga. x 36 x 96 —120; [2] 20 ga. x 36 x 96 —120; [3] 10 ga. x 36 —120; [4] ½" x 1"; [5] ¼" x 84"; [6] I-Beams 6 x 12.5; [7] Rounds—⅝-2 15/16"; [8] 15 ga. & heavier; [9] 14 ga. & lighter.

(Effective May 25, 1959)

PIG IRON

Dollars per gross ton, f.o.b., subject to switching charges.

Producing Point	Basic	Fdry.	Mall.	Bess.	Low Phos.
Birdsboro, Pa. *B6*	68.00	68.50	69.00	69.50	.....
Birmingham *R3*	62.00	62.50*	.....	.....	.....
Birmingham *W9*	62.00	62.50*	66.50	.....	.....
Birmingham *U4*	62.00	62.50*	66.50	.....	.....
Buffalo *R3*	66.00	66.50	67.00	67.50	.....
Buffalo *H1*	66.00	66.50	67.00	67.50	.....
Buffalo *W6*	66.00	66.50	67.00	67.50	.....
Chester *P2*	66.50	67.00	67.50	.....	.....
Chicago *I4*	66.00	66.50	66.50	67.00	.....
Cleveland *A5*	66.00	66.50	66.50	67.00	71.00†
Cleveland *R3*	66.00	66.50	66.50	67.00	.....
Duluth *I4*	66.00	66.50	66.50	67.00	71.00†
Erie *I4*	66.00	66.50	66.50	67.00	71.00†
Everett *M6*	67.50	68.00	68.50	.....	.....
Fontana *K1*	75.00	75.50	.....	.....	.....
Geneva, Utah *C7*	66.00	66.50	.....	.....	.....
Granite City *G2*	67.90	68.40	68.90	.....	.....
Hubbard *Y1*	.....	.....	66.50	.....	.....
Ironton, Utah *C7*	66.00	66.50	.....	.....	.....
Midland *C11*	66.00	.....	.....	.....	.....
Minnequa *C6*	68.00	68.50	69.00	.....	.....
Monessen *P6*	66.00	.....	.....	.....	.....
Neville Is. *P4*	66.00	66.50	66.50	67.00	71.00†
N. Tonawanda *T1*	.....	66.50	67.00	67.50	.....
Sharpsville *S3*	66.00	.....	66.50	67.00	.....
So. Chicago *R3*	66.00	66.50	66.50	67.00	.....
So. Chicago *W8*	66.00	.....	66.50	67.00	.....
Swedeland *A2*	68.00	68.50	69.00	69.50	.....
Toledo *I4*	66.00	66.50	66.50	67.00	.....
Troy, N. Y. *R3*	68.00	68.50	69.00	69.50	73.00
Youngstown *Y1*	.....	.....	66.50	.....	.....

DIFFERENTIALS: Add, 75¢ per ton for each 0.25 pct silicon or portion thereof over base (1.75 to 2.25 pct except low phos., 1.75 to 2.00 pct) 50¢ per ton for each 0.25 pct manganese or portion thereof over 1 pct, $2 per ton for 0.50 to 0.75 pct nickel, $1 for each additional 0.25 pct nickel. Add $1.00 for 0.31-0.69 pct phos.

Silvery Iron: Buffalo (6 pct), *H1*, $79.25; Jackson *J1*, *I4* (Globe Div.), $78.00; Niagara Falls (15.01-15.50), $101.00; Keokuk (14.01-14.50), $103.50; (15.51-16.00), $106.50. Add $1.00 per ton for each 0.50 pct silicon over base (6.01 to 6.50 pct) up to 18 pct. Add $1.25 for each 0.50 pct manganese over 1.00 pct. Bessemer silvery pig iron (under .10 pct phos.): $64.00. Add $1.00 premium for all grades silvery to 18 pct.

† Intermediate low phos.

STAINLESS STEEL

Base price cents per lb. f.o.b. mill

Product	201	202	301	302	303	304	316	321	347	403	410	416	430
Ingots, reroll.	22.75	24.75	24.00	26.25	—	28.00	41.25	33.50	38.50	—	17.50	—	17.75
Slabs, billets	28.00	31.50	29.00	32.75	33.25	34.50	51.25	41.50	48.25	—	22.25	—	22.50
Billets, forging	—	37.75	38.75	39.50	42.50	42.00	64.50	48.75	57.75	29.25	29.25	29.75	29.75
Bars, struct.	43.50	44.50	46.00	46.75	49.75	49.50	75.75	57.50	67.25	35.00	35.00	35.50	35.50
Plates	39.25	40.00	41.25	42.25	45.00	45.75	71.75	54.75	64.75	30.00	30.00	31.25-31.75	31.00
Sheets	48.50	49.25	51.25	52.00	56.75	55.00	80.75	65.50	79.25	40.25	40.25	48.25	40.75
Strip, hot-rolled	36.00	39.00	37.25	40.50	—	44.25	69.25	53.50	63.50	—	31.00	—	32.00
Strip, cold-rolled	45.00	49.25	47.50	52.00	56.75	55.00	80.75	65.50	79.25	40.25	40.25	42.50	40.75
Wire CF; Rod HR	—	42.25	43.50	44.25	47.25	47.00	71.75	54.50	63.75	33.25	33.25	33.75	33.75

STAINLESS STEEL PRODUCING POINTS:

Sheets: Midland, Pa., *C11;* Brackenridge, Pa., *A3;* Butler, Pa., *A7;* Vandergrift, Pa., *U1;* Washington, Pa., *W2, J2;* Baltimore, *E1;* Middletown, O., *A7;* Massillon, O., *R3;* Gary, *U1;* Bridgeville, Pa., *U2;* New Castle, Ind., *I2;* Detroit, *M2;* Louisville, O., *R5.*

Strip: Midland, Pa., *C11;* Waukegan, Cleveland, *A5;* Carnegie, Pa., *S9;* McKeesport, Pa., *F1;* Reading, Pa., *C2;* Washington, Pa., *W2;* W. Leechburg, Pa., *A3;* Bridgeville Pa., *U2* Detroit, *M2;* Detroit, *S1;* Canton, Massillon, O., *R3;* Harrison, N. J., *D3;* Youngstown, *R5;* Sharon, Pa., *S1;* Butler, Pa., *A7;* Wallingford, Conn., *U3* (plus further conversion extras); *W1* (25¢ per lb. higher); Seymour, Conn., *S13,* (25¢ per lb. higher); New Bedford, Mass., *R6;* Gary, *U1,* (25¢ per lb. higher).

Bar: Baltimore, *A7;* S. Duquesne, Pa., *U1;* Munhall, Pa., *U1;* Reading, Pa., *C2;* Titusville, Pa., *U2;* Washington, Pa., *J2;* McKeesport, Pa., *U1, F1;* Bridgeville, Pa., *U2;* Dunkirk, N. Y., *A3;* Massillon, O., *R5;* S. Chicago, *U1;* Syracuse, N. Y., *C11;* Watervliet, N. Y., *A3;* Waukegan, *A5;* Canton, O., *T5, R3;* Ft. Wayne, *I4;* Detroit, *R5;* Gary, *U1;* Owensboro, Ky., *G5;* Bridgeport, Conn., *N8;* Ambridge, Pa., *B7.*

Wire: Waukegan, *A5;* Massillon, O., *R3;* McKeesport, Pa., *F1;* Ft. Wayne, *J4;* Newark, N. J. *D2;* Harrison, N. J., *D3;* Baltimore, *A7;* Dunkirk, *A3;* Monessen, *P1;* Syracuse, *C11;* Bridgeville, *U2;* Detroit, *R5;* Reading, Pa., *C2;* Bridgeport, Conn., *N8.*

Structurals: Baltimore, *A7;* Massillon, O., *R3;* Chicago, Ill., *J4;* Watervliet, N. Y., *A3;* Syracuse, *C11;* S. Chicago, *U1.*

Plates: Ambridge Pa., *B7;* Baltimore, *E1;* Brackenridge, Pa., *A3;* Chicago, *U1;* Munhall, Pa., *U1;* Midland, Pa., *C11;* New Castle, Ind., *I2;* Middletown, *A7;* Washington, Pa., *J2;* Cleveland, Massillon, *R3;* Coatesville, Pa., *C15;* Vandergrift, Pa., *U1;* Gary, *U1.*

Forging billets: Ambridge, Pa., *B7;* Midland, Pa., *C11;* Baltimore, *A7;* Washington, Pa., *J2;* McKeesport, *F1;* Massillon, Canton, O., *R3;* Watervliet, *A3;* Pittsburgh, Chicago, *U1;* Syracuse, *C11;* Detroit, *R5;* Munhall, Pa., S. Chicago, *U1;* Owensboro, Ky., *G5;* Bridgeport, Conn., *N8;* Reading, Pa., *C2.*

(Effective May 25, 1959)

DYKEM STEEL BLUE®

Stops Losses making Dies and Templates

Popular package is 8-oz. can fitted with Bakelite cap holding soft-hair brush for applying right at bench; metal surface ready for layout in a few minutes. The dark blue background makes the scribed lines show up in sharp relief, prevents metal glare. Increases efficiency and accuracy.

Write for sample on company letterhead

THE DYKEM COMPANY
2303G North 11th St. • St. Louis 6, Mo.

CUT SCRAPER TIME
END NIGHT CLEANUP & MORNING REBLUING

DYKEM HI-SPOT BLUE No. 107 is used to locate high spots when scraping bearing surfaces. As it does not dry, it remains in condition on work indefinitely, saving scraper's time. Intensely blue, smooth paste spreads thin, transfers clearly. No grit; noninjurious to metal. Uniform. Available in collapsible tubes of three sizes. Order from your supplier. Write for free sample tube on company letterhead.

THE DYKEM CO., 2303G NORTH 11TH ST., ST. LOUIS 6, MO.

GOSS and DE LEEUW
MULTIPLE SPINDLE
CHUCKING MACHINES
Four, Five, Six, Eight Spindles • Work and Tool Rotating Type
GOSS & DE LEEUW MACHINE CO., KENSINGTON, CONN.

MACHINE WORK & SPECIAL MACHINE BUILDING

We have large, medium and small machine tools available for machine work and the building of special machinery.

We will be pleased to receive your inquiries.

SUN SHIP
BUILDING & DRYDOCK COMPANY
CHESTER, PA.

FERROALLOY PRICES

Ferrochrome

Cents per lb contained Cr, lump, bulk, carloads, del'd. 67-71% Cr, .30-1.00% max. Si.

0.02% C....	41.00	0.50% C....	38.00
0.05% C....	39.00	1.00% C....	37.75
0.10% C....	38.50	1.50% C....	37.50
0.20% C....	38.25	2.00% C....	37.25

4.00-4.50% C, 60-70% Cr, 1-2% Si.. 28.75
3.50-5.00% C, 57-64% Cr, 2.00-4.50% Si 28.25
0.025% C (Simplex) 36.75
8% max C, 50-55% Cr, 6% max Si. 25.75
4½% max C, 50-55% Cr, 2% max Si 26.50

High Nitrogen Ferrochrome

Low-carbon type 0.75% N. Add 5¢ per lb to regular low carbon ferrochrome max. 0.10% C price schedule.

Chromium Metal

Per lb chromium, contained, packed, delivered, ton lots, 97.25% min. Cr, 1% max. Fe.

0.10% max. C $1.29
9 to 11% C, 88-91% Cr, 0.75% Fe... 1.38

Electrolytic Chromium Metal

Per lb of metal 2" x D plate (⅛" thick) delivered packed, 99.80% min. Cr. (Metallic Base) Fe 0.20 max.

Carloads $1.15
Ton lots 1.17
Less ton lots 1.19

Low Carbon Ferrochrome Silicon

(Cr 39-41%, Si 42-45%, C 0.05% max.)
Carloads, delivered, lump, 3-in. x down, packed.

Price is sum of contained Cr and contained Si.

	Cr	Si
Carloads, bulk	28.25	14.60
Ton lots	33.50	16.05
Less ton lots	35.10	17.70

Calcium-Silicon

Per lb of alloy, lump, delivered, packed. 30-33% Cr, 60-65% Si, 3.00 max. Fe.

Carloads, bulk 24.00
Ton lots 27.95
Less ton lots 29.45

Calcium-Manganese—Silicon

Cents per lb of alloy, lump, delivered, packed.
16-20% Ca, 14-18% Mn, 53-59% Si.

Carloads, bulk 23.00
Ton lots 26.15
Less ton lots 27.15

SMZ

Cents per pound of alloy, delivered, 60-65% Si, 5-7% Mn, 5-7% Zr, 20% Fe ½ in. x 12 mesh.

Ton lots 21.15
Less ton lots 22.40

V Foundry Alloy

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, V-5; 38-42% Cr, 17-19% Si, 8-11% Mn, packed.

Carload lots 18.45
Ton lots 19.95
Less ton lots 21.20

Graphidox No. 4

Cents per pound of alloy, f.o.b. Suspension Bridge, N. Y., freight allowed, max. St. Louis, Si 48 to 52%, Ti 9 to 11%, Ca 5 to 7%.

Carload packed 19.20
Ton lots to carload packed 21.15
Less ton lots 22.40

Ferromanganese

Maximum base price, f.o.b., lump size, base content 74 to 76 pct Mn.

Producing Point	Cents per-lb
Marietta, Ashtabula, O.; Alloy, W. Va.; Sheffield, Ala.; Portland, Ore.	12.25
Johnstown, Pa.	12.25
Neville Island, Pa.	12.25
Sheridan, Pa.	12.25
Philo, Ohio	12.25
S. Duquesne	12.25

Add or substract 0.1¢ for each 1 pct Mn above or below base content.

Briquets, delivered, 66 pct Mn:

Carloads, bulk 14.80
Ton lots packed in bags 17.20

Spiegeleisen

Per gross ton, lump, f.o.b. Palmerton, Pa., and Neville Island, Pa.

Manganese	Silicon	
16 to 19%	3% max.	$100.50
19 to 21%	3% max.	102.50
21 to 23%	3% max.	105.00

Manganese Metal

2 in. x down, cents per pound of metal delivered.

95.50% min. Mn, 0.2% max. C, 1% max. Si, 2.5% max. Fe.

Carload, packed 45.75
Ton lots 47.25

Electrolytic Manganese

F.o.b. Knoxville, Tenn., freight allowed east of Mississippi, f.o.b. Marietta, O., delivered, cents per pound.

Carloads 34.00
Ton lots 36.00
250 to 1999 lb 38.00
Premium for Hydrogen - removed metal 0.75

Medium Carbon Ferromanganese

Mn 80 to 85%, C 1.25 to 1.50, Si 1.50% max., carloads, lump, bulk, delivered, per lb of contained Mn 25.50

Low-Carb Ferromanganese

Cents per pound Mn contained, lump size, packed, del'd Mn 85-90%.

	Carloads	Ton	Less
0.07% max. C, 0.06% (Bulk) P, 90% Mn	37.15	39.95	41.15
0.07% max. C	35.10	37.90	39.10
0.10% max. C	34.35	37.15	38.35
0.15% max. C	33.60	36.40	37.60
0.30% max. C	32.10	34.90	36.10
0.50% max. C	31.60	34.40	35.60
0.75% max. C, 80.85% Mn, 5.0-7.0% Si ...	28.60	31.40	32.60

Silicomanganese

Lump size, cents per pound of metal, 65-68% Mn, 18-20% Si, 1.5% max. C for 2% max. C, deduct 0.2¢ f.o.b. shipping point.

Carloads bulk 12.80
Ton lots, packed 14.45
Carloads, bulk, delivered, per lb of briquet 15.10
Briquets, packed pallets, 3000 lb up to carloads 16.30

Silvery Iron (electric furnace)

Si 15.50 to 16.00 pct., f.o.b. Keokuk, Iowa, or Wenatchee, Wash., $106.50 gross ton, freight allowed to normal trade area. Si 15.01 to 15.50 pct, f.o.b. Niagara Falls, N. Y., $93.00.

Silicon Metal

Cents per pound contained Si, lump size, delivered, packed.

	Ton lots,	Carloads,
98.25% Si, 0.50% Fe..	24.95	23.65
98% Si, 1.0% Fe	24.45	23.15

Silicon Briquets

Cents per pound of briquets, bulk, delivered, 40% Si, 2 lb Si, briquets.

Carloads, bulk 8.00
Ton lots, packed 10.80

Electric Ferrosilicon

Cents per lb contained Si, lump, bulk, carloads, f.o.b. shipping point.

50% Si....	14.60	75% Si....	16.90
65% Si....	15.75	85% Si....	18.60
	90% Si....	20.00	

Ferrovanadium

50-55% V delivered, per pound, contained V, in any quantity.

Openhearth 3.20
Crucible 3.30
High speed steel 3.40

Calcium Metal

Eastern zone, cents per pound of metal, delivered.

	Cast	Turnings	Distilled
Ton lots	$2.05	$2.95	$3.75
100 to 1999 lb..	2.40	3.30	4.55

(Effective May 25, 1959)

Alsifer, 20% Al, 40% Si, 40% Fe, f.o.b. Suspension Bridge, N. Y., per lb.

Carloads, bulk ..... 9.85¢
Ton lots ..... 11.20¢

Calcium molybdate, 43.6-46.6% f.o.b. Langeloth, Pa., per pound contained Mo $1.50

Ferrocolumbium, 50-60% lb, 2 in. x D, delivered per pound contained Cb.

Ton lots $3.90
Less ton lots..... 3.95

Ferro-tantalum-columbium, 20% Ta, 40% Cb, 0.30% C, del'd ton lots, 2-in. x D per lb con't Cb plus Ta $3.40

Ferromolybdenum, 55-75%, 200-lb containers, f.o.b. Langeloth, Pa., per pound contained Mo.. $1.76

Ferrophosphorus, electric, 23-26%, car lots, f.o.b. Siglo, Mt. Pleasant, Tenn., $5.00 unitage, per gross ton $120.00
10 tons to less carload $131.00

Ferrotitanium, 40% regular grade 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.35

Ferrotitanium, 25% low carbon, 0.10% C max., f.o.b. Niagara Falls, N. Y., and Cambridge, O., freight allowed, ton lots, per lb contained Ti $1.50
Less ton lots $1.54

Ferrotitanium, 15 to 18% high carbon, f.o.b. Niagara Falls, N. Y., freight allowed, carload per net ton $240.00

Ferrotungsten, ¼ x down packed, per pounds contained W, ton lots delivered ..... $2.15 (nominal)

Molybdic oxide, briquets per lb contained Mo, f.o.b. Langeloth, Pa. $1.49
bags, f.o.b. Washington, Pa., Langeloth, Pa. $1.38

Simanal, 20% Si, 20% Mn, 20% Al, f.o.b. Philo, Ohio, freight allowed per lb.

Carload, bulk lump ..... 18.50¢
Ton lots, packed lump ..... 20.50¢
Less ton lots ..... 21.00¢

Vanadium oxide, 86-89% V_2O_5 per pound contained V_2O_5 .... $1.38

Zirconium silicon, per lb of alloy 35-40% del'd, carloads, bulk.. 26.25¢
12-15%, del'd lump, bulk-carloads ..... 9.25¢

Boron Agents

Borosil, per lb of alloy del. f.o.b. Philo, Ohio, freight allowed, B 3-4%, Si 40-45%, per lb contained B
2000 lb carload $5.50

Bortram, f.o.b. Niagara Falls.
Ton lots per pound ..... 45¢
Less ton lots, per pound ..... 50¢

Corbortam, Ti 15-21%, B 1-2%, Si 2-4%, Al 1-2%, C 4-5-7.5%, f.o.b., Suspension Bridge, N. Y., freight allowed.
Ton lots per pound ..... 14.00¢

Ferroboron, 17.50 min. B, 1.50% max. Si, 0.50% max. Al, 0.50% max. C, 1 in. x D, ton lots... $1.20
F.o.b. Wash., Pa., Niagara Falls, N. Y., delivered 100 lb up
10 to 14% B ..... .85
14 to 19% 1.20
19% min. B 1.50

Grainal, f.o.b. Cambridge, O., freight, allowed, 100 lb and over
No. 1 ..... $1.05
No. 79 ..... 50¢

Manganese-Boron, 75.00% Mn, 17.50% B, 5% max. Fe, 1.50% max. Si, 3.00% max. C, 2 in. x D, del'd.
Ton lots (packed) $1.46
Less ton lots (packed) 1.57

Nickel-Boron, 15-18% B, 1.00% max. Al, 1.50% max. Si, 0.50% max. C, 3.00% max. Fe, balance Ni, del'd less ton lots 2.15

ELECTRICAL POWER EQUIPMENT IN STOCK

DC MOTORS

Qu.	H.P.	Make	Type	Volts	RPM
1	3900	New Elliott	Enc. F.V.	475	320
1	3000	New Whse.	Enc. F.V.	525	600
1	2250	New Elliott	Enc. F.V.	600	200/300
1	2200	G.E.	MCF	600	400/500
1	1750	New Elliott	Enc. F.V.	250	175/350
8	1500	New Whse.	Enc. F.V.	525	600
1	1300	G.E.	MCF-12	300	200/400
1	1200	G.E.	MCF	600	450/600
1	1000	Whse.		500	800/2000
1	940	Whse.	QM	250	140/170
2	940	S.S.	Enc. F.V.	600	800/1000
2	800	G.E.	MCF	250	400/750
3	765	Allis Ch.	MHC	550	1012/1350
2	750	G.E.	MCF	600	450/900
1	750	G.E.	MCF	600	300/720
1	750	G.E.	M.F.	600	120/360
4	600	Whse.		250	275/550
1	500	G.E.	MPC-10	250	188/400
2	450	Whse.		550	415
2	400	G.E.	CY-275	300	1000/1500
3	325	Allis Ch.	MHC	250	450/900
1	300	Cr. Wh.	H-102 B.B.	230	1200
1	225	G.E.B.B.		250	1150/3600
1	200	Rel. B.B.	T-664-D.P.	240	850
1	200	Whse.	CB-207-4	250	850/1200
1	150	Cr.Wh.	CMC-65H	230	1150
1	150	G.E.B.B.	TLC-74	250	1150/3500
1	150	G.E.B.B.	CD	600	250/750
1	120	G.E.B.B.	TLC-50	250	1950/5000
1	125/250	New Whse.	CB-210.3	230	300/1200
1	120	Rel. B.B.	1050T	230	575/900
2	125	Whse.	SK-190	230	450/1200
1	125	Whse.	SK-185	230	350/1050
1	100	G.E.	CDP-145	230	1750
1	80	Whse.	SK-122.9	240	2000/4500
1	75	G.E.B.B.	CD-1235-D.P.	600	850
1	60/75	Rel. B.B.	T-664-D.P.	240	300/1200
1	30/40	Whse. B.B.	SK-131, TEFC	250	500/1500
1	25/33	Rel. B.B.	TY563	240	300/1200
6	40	Rel. B.B.	385F, TEFC	230	500/1500
1	30/40	Rel. B.B.	T-564-D.P.	240	300/900

MERCURY ARC RECTIFIERS

3—150 KW, G.E., Sealed Tube Ignitron Unit Substation load centers 275 V. D.C., 2300 V. A.C. Pyranol filled transformers complete.
2—150 KW, G.E., Ignitron, 245 V. D.C.—230 V. A.C., air cooler transformers with controls.

MG SETS—3 Ph. 60 Cy.

Qu.	K.W.	Make	RPM	DC Volts	AC Volts
1	2000	G.E.	514	600	2300/4600
2	1750//2100	G.E.	514	250/300	2300/4600
1	1750	G.E.	514	600	2300/4600
1	1500	G.E.	720	600	6600/132000
1	1500	Cr.Wh. 4 unit	720	100	2300
1	500	G.E.	900	125/250	440
1	350	G.E.	900	125	440/2300/4160
1	300	G.E.	1200	250	2300/4000
1	300	G.E.	1200	250	440/2300
1	250	G.E.	900	250	440/2300
1	240	Whse.	900	125	220/440
1	200	Whse.	1200	550	2200
1	200	El.Mhy	1200	250	2300/4600
1	150	G.E.	1200	275	2300
1	150	Whse.	1200	275	2300
1	150	G.E.	1200	125	440
1	140	Cr.Wh.	690	125/250	2300
1	100	G.E.	1170	250	220/440
1	100	Cr.Wh.	1800	240	440
2	100	Cr.Wh.	1160	525	220/550
1	100	G.E.	1200	250	2400/4100
2	75	Whse.	1200	125	440

TRANSFORMERS

Qu.	KVA	Make	Type	Ph.	Voltages
3	3333	Whse.	OISC	1	13800 x 2300
3	1000	G.E.	CA/FA	1	13800 x 230/460
2	750	G.E.	Pyranol	1	4800x85/55-255/165
3	500	Kuhl	OISC	1	13200 x 6600
6	333	G.E.	HS	1	7200/12470YX 2400/4160Y
3	333	G.E.	OISC	3	2400/4160YX600
3	150	G.E.	OISC	1	3300x2300/4000Y
3	100	G.E.	HS	1	4800/8320Y x 120/240
1	50	Mel.	OISC	3	13200 x 240-480
3	50	Al.Ch.			2400 x 120/240

CRANE & MILL MOTORS
230 V., D. C.

Qu.	H.P.	Make	RPM	Type
12	12/14	Whse.	700/600	MCA-30, Series
1	20	Whse.	975	K-5 Series
2	23	G.E.	650	MDS-408
2	25	G.E.	725	CO-1808, Series
1	25	Whse.	480	CK-9 Comp. S.B.
1	35	Whse.	480	CK-9 Sh. R.B.
1	45	Whse.	600	CK-9 Comp. S.B.
3	50	G.E.	650	COM-1830 Comp.
3	50	Whse.	525	CK-9 Shunt. R.B.
2	50	Whse.	600	CK-9 Comp. R.B.
1	50	G.E.	525	COM-1830AEB.B.
1	50	Cr.Wh.	550	SW-50 Comp.
1	100	G.E.	475	CO-1832 S.B.
6	100/140	Whse.	500/415	MC-90 R.B.

RE-NU-BILT By

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MDNA Members Push Sales Methods

▪ Used machinery dealers find their market prospects better, but believe hard selling is still in order.

Gathered in New York recently for their annual meeting 125 members of the Machinery Dealers National Association came to these conclusions:

Business during the balance of 1959 should continue around present levels, without any violent ups or downs.

The industry's customer potential is good, but more door knocking and advertising are needed to locate buyers.

Government methods of selling surplus equipment should be reviewed for their correctness.

Continuing efforts are needed to obtain the same depreciation rate for used machinery now available on new machinery.

Javits Speaks—Depreciation was discussed in a speech delivered to the convention by Senator Jacob K. Javits (R.-N.Y.). Sen. Javits pointed out there is a bill pending in Congress which would grant small business the depreciation rate on used machines now available on new machinery up to a total value of $250,000 over five years.

"The Treasury estimates (if the bill passes) a revenue loss of $75 million a year," he added, "but that cost is small considering the benefits to our national interest."

New Officers—Victor Segal, Victor Machinery Co., Chicago, was elected as the new president of the MDNA. Other new officers are: Bud Corrigan, Noll Equipment Co., Cleveland, first vice-president; Alex Zeeve, Alex Zeeve & Co., New York, second vice-president; Richard Strom, Strom Machinery Corp., Hammond, Ind., treasurer; and Elmer W. Pfeil, Elmer W. Pfeil, Inc., Cleveland, immediate past president.

Man of the Year

Philadelphia machinery dealer William H. Sharpe was selected as the 1959 Man of the Year by members of the MDNA during the convention. The award is made annually to the man "who has done the most for the used machinery business and the association."

Mr. Sharpe was especially honored for his work in drawing up standardized terms for used and rebuilt equipment.

WILLIAM H. SHARPE: Chosen by the Machinery Dealers National Association as their "Man of the Year."

CLARK ELECTRIC FORK LIFT TRUCKS

GOVERNMENT SURPLUS SPECIAL

2 & 3 TON CLARK & YALE ELECTRIC FORK LIFT TRUCKS

Army Surplus from Dry Government Storage

These trucks have seen very little use as they have been in dry government storage for a number of years.

A wonderful opportunity for anybody in the market for a good Electric Fork Lift Truck.

Specially priced for quick sale.

$2,050 Each

OTHER CLARK ELECTRIC VALUES

CLARK ELECTRIC FORK LIFT TRUCK. 2,000 lbs. Capacity. Late model. Any lift. REBUILT and GUARANTEED. Less Battery and Battery Charger.

$2,500

CLARK ELECTRIC FORK LIFT TRUCK. 3,000 lbs. Capacity. Any lift. Late model. Excellent Condition. REBUILT and GUARANTEED. Less Battery and Battery Charger.

$3,250

GERLINGER Gasoline Fork Lift Truck. 8 Ton Cap., Mod. PH862. Pneumatic Tires. Power Steering, 16' lift, NEW 1953. Excellent Condition. Completely REBUILT & GUARANTEED.

$6,750

SILENT HOIST Gasoline Fork Lift Truck. 7½ Ton Cap., Pneumatic Tires, New 1955, Excellent Condition, 18' lift, REBUILT and GUARANTEED.

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4 & 5 TON CAPACITY SOLID TIRES

1 TOWMOTOR GASOLINE FORK LIFT TRUCK, 10,000 lbs. Capacity. Model LT-72 Solid Rubber Tires. Rebuilt and Guaranteed.

$4,250

1 YALE GASOLINE FORK LIFT TRUCK. 10,000 lbs. Capacity. Model KG51AT100V. Solid Rubber Tires. New 1953. Rebuilt and Guaranteed.

$5,350

1 CLARK GASOLINE FORK LIFT TRUCK. 10,000 lbs. Capacity. Solid Rubber Tires. Model 100. Dynatorque Drive. Excellent Condition. Late model.

$5,250

ELECTRIC MOBILE CRANES

3 TON YALE ELECTRIC CRANES. Cranes were built 1952 and 1953 and have never been used. Telescopic Revolving Boom 12' to 19'. New price of Cranes, less Battery and Battery Charger, approximately $18,000.

$7,400

All Electric Cranes can be supplied with Ready-Power Units or Battery and Battery Chargers at additional charge.

YALE & TOWNE K42G-10-5-½-78 Electric Crane. 10,000 lbs. Capacity. Solid Tires. 12' to 19' Boom. Excellent Condition. REBUILT and GUARANTEED. Less Battery and Battery Charger.

$7,900

ELWELL-PARKER Model CZ Electric Crane. 10,000 lbs. Capacity. Solid Tires. 12' to 19' Boom. Excellent Condition. REBUILT and GUARANTEED. Less Battery and Charger.

$7,900

BAKER Model CXF Electric Crane. 10,000 lbs. Capacity. Solid Tires. 12' to 19' Boom. Excellent Condition. REBUILT and GUARANTEED. Less Battery and Battery Charger.

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BAKER Model CXF Unused Electric Crane. 10,000 lbs. Capacity. Solid Tires. 12' to 19' Boom. Power Steering. Excellent Condition. Less Battery and Battery Charger.

$8,400

YALE & TOWNE K42SH-6-7-78 Electric Crane. 6,000 lbs. Capacity. Solid Tires. 12' to 19' Boom. Excellent Condition. REBUILT and GUARANTEED. Less Battery and Charger.

$4,900

BAKER Electric Mobile Crane. 3 Ton Capacity. Solid Tires. 12' to 19' Boom. Excellent Condition. REBUILT and GUARANTEED. Less Battery and

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YALE & TOWNE Electric Crane. 3,000 lbs. Capacity. 12' to 19' Telescoping & Revolving Boom. Less Battery and Battery Charger.

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20 TON WAGON CRANE

BROWNING WAGON CRANE. 20 Ton Capacity. 25 Ton Capacity with Out Riggers. 40' Boom. NEW 1953. Mounted on 12 Pneumatic Tires. Diesel Engine.

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KRANE KAR. 10 Ton Capacity. Solid Rubber Tires. 12' to 18' Telescopic Revolving Boom. Excellent Condition. Completely REBUILT and GUARANTEED.

$7,200

KRANE KAR. 5 Ton Capacity. Diesel. Pneumatic Tires. 12' to 18' Telescopic Revolving Boom. Excellent Condition. REBUILT and GUARANTEED.

$5,900

(2) KRANE KARS. 5 Ton Capacity. Pneumatic Tires. 12' to 18' Telescopic Revolving Boom. New 1952 and 1953. Excellent Condition. Completely REBUILT and GUARANTEED.

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KRANE KAR. 5 Ton Capacity. Pneumatic Tires. 12' to 18' Telescopic Revolving Boom. Excellent Condition. REBUILT and GUARANTEED

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2 KRANE KARS. 5 Ton Capacity. Solid Rubber Tires. 12' to 18' Telescopic Revolving Boom. Excellent Condition. Completely REBUILT and GUARANTEED.

$4,400

KRANE KAR. 2½ Ton Capacity. Pneumatic Tires. 12' to 18' Telescopic Revolving Boom. Excellent Condition. REBUILT and GUARANTEED.

$4,250

HYSTER KARRY KRANE

HYSTER Model KB Krane. 5 Ton Capacity. Pneumatic Tires. Hercules Gas Engine. Excellent Condition. REBUILT and GUARANTEED.

$3,500

GARWOOD MAGNET CRAWLER CRANE

Complete with 45" Ohio Magnet and MG Set. Model 75A. Late Model. ¾ Yard Capacity. General Motors Diesel Engine. 40' Boom. Very Good Condition. Cost New Today Approx. $50,000.

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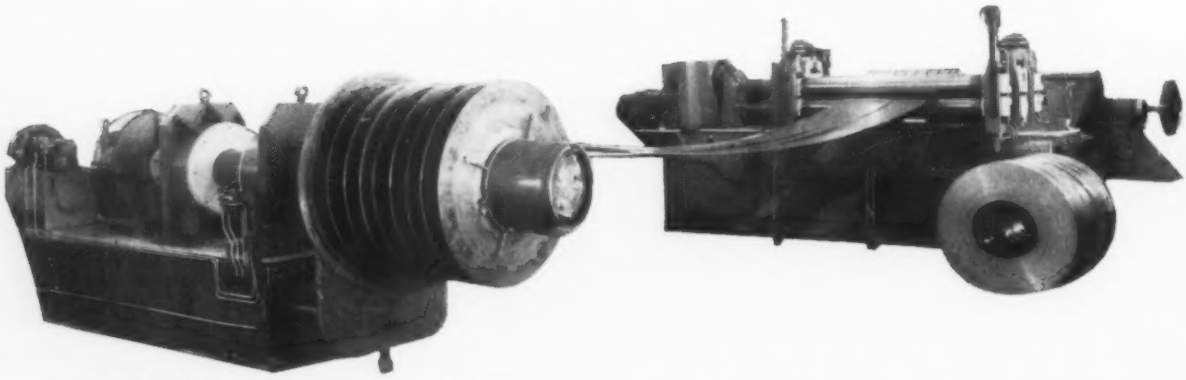
84" SLITTING LINE . . . .

This Line was delivered in March 1957, and was manufactured by Universal Gear & Machine. The Line consists of a Cone-Type Uncoiler which is hydraulically operated, with an Air Brake. The Slitter has 7" Arbors, 10" Air-Operated Pinch Rolls, both Entry and Exit, and has a 25 H.P. Threading Motor with a Chain Drive connected to the Entry Rolls. The Recoiler has a 22" Drum, is operated by a 150 H.P. D.C. Motor, (Fed by a 100 H.P. A.C. Motor Generator). The Drum is equipped with a mechanical Locking Device and a Hydraulically operated push-off mechanism. The Line capacity is 75,000 lb. coils, 84" wide. The maximum number of cuts that have been taken is 8-cuts of .187.

THIS LINE MAY BE SEEN IN OPERATION. ITS REPLACEMENT COST IS IN EXCESS OF $200,000.00.

PRICE . . . F.O.B. CHICAGO $89,500.00



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22'5" Centers
54" Bullard Vert. Turret Lathe, Turret Head on Rail, Side Head, Spiral Drive, M.D.
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600 Ton Southwark Hyd. Inclined Wheel Press
6' x ¼" Lown Initial Bending Roll M.D.

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No. 2H Kearney & Trecker, m.d.
No. 2MH Cincinnati Plain, m.d.
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No. 2B Brown & Sharpe, m.d.
No. 3B Milwaukee, m.d.
No. 3B Brown & Sharpe, m.d.
No. 3SP Van Norman, m.d.
No. 4H Kearney & Trecker, m.d.
No. 4 Cincinnati H.P., m.d.
No. 5 Cincinnati H.P., m.d., late
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No. 36 Van Norman Ram Type, m.d.

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10x48" Hanson & Whitney Universal Semi-Automatic, m.d.
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12x102" Lees-Bradner Universal Type, m.d
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52" Niles-Bement-Pond Car Wheel Lathe, m.d.
90" Niles Journal Turning Locomotive Lathe, including 2 inside journal turrets and 3½" spindle double quartering attach., m.d.
90" Niles Driving Wheel Lathe, m.d., latest
Chambersburg Mounting & Dismounting H.S. Duplex Car Wheel Press
300 ton Chambersburg Car Wheel Press, m.d.
90" Niles Balanced Quartering & Crank Pin Turning Machine, m.d.

SAWS
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No. 4XB Robertson Economy, m.d., new
No. 328 Cochran Bly Saw, m.d., latest
Model 102, Type JCAW, Cincinnati Elec. Tool & Abrasive Cut-off, m.d.
Model 401 Cutomatic Abrasive Cut-off, m.d.
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10' x ⅜" Bertsch No. 11 Initial Type—LATE
20' x ½" Niles Pyramid Type
32' x ⅝" BALDWIN PYRAMID TYPE—LATE

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8' x ¼" Dreis & Krump, 12" Finger Extension

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90 ton Niagara. Model 90-8-10
10' x ⅛" Dreis & Krump

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3 ton P&H	40' Span 230 Volt D.C.
5 ton P&H	57' Span 230/3/60 A.C.
8 ton P&H	55' Span 230/3/60
10 ton P&H	39' Span 230 Volt D.C.
10 ton Milwaukee	57' Span 230 Volt D.C.
10 ton Shaw	48' Span 230 Volt D.C.
10 ton Whiting	75' Span 220/3/60 A.C.
10 ton Shaw	120' Span 230 Volt D.C.
15 ton N-B-P	100' Span 220/3/60 A.C.
30 ton Shaw	70' Span 230 Volt D.C.
120 ton Niles	67' Span 230 Volt D.C.
120 ton Shepard Niles	77' Span 220/3/60 A.C.

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7,000 lb. Draw Bench, 51 ft. Draw
10,000 lb. Draw Bench, 50 ft. Draw
35,000 lb. Draw Bench, 41 ft. Draw

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1" to 5" Acme, Ajax, National

HAMMERS—BOARD DROP—STEAM DROP—STEAM FORGING 800 lb. to 12,000 lb. incl.

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24" Torrington, 9 Rolls 8" Dia.
66" Guide 17 Rolls 4½" Dia.
72" Leveler 17 rolls 2⅝" Backed Up

MULTI SLIDE MACHINE
No. 35 U.S. Multi-Slide, Max. Capy. 4¼" wide x .089

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Pullmax Model 2, Capacity 11/32"

PRESSES—HYDRAULIC
300 ton Southwark, Platen 28" x 28", Stroke 35"
500 ton Watson Stillman Piercing Press, 48" x 72"
500 ton HPM Fastraverse, Bed 36" x 36"
600 ton Birdsboro, Platen 48 x 48", Stroke 15"
1000 ton Southwark, Bed 44" x 54", Stroke 20"
4500 ton B-L-H Bed 68 x 68", Stroke 40'

PRESS—KNUCKLE JOINT
800 ton Cleveland Model 8-K, 6" Stroke

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#1½ Buffalo Universal Ironworker
#2½ Buffalo Ironworker
#8 Kling, 36" Throat Capacity 1⅝" x 1"
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3½" x 7" Six Roll Cluster Mill
10" x 14" Single Stand Two High
12" x 16" Single Stand Two High
16" x 24" Two Stand Two High
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18 Stand Custom Built, 2⅛ Shaft, will take 36" wide

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72" McKay, 20 Rolls 15" Dia. Infeed & Outfeed Rolls, 150 H.P. Main Drive Motor
92" Hilles & Jones, 6 Rolls 10" Dia.

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Model 122-BA Ty-Sa-Man, Capacity 8 Cuts 2" Deep at one time 15" wide, 16 ft. long

SCALPING OR BILLET PEELING MACHINE
Medart #6 Size HFBP, Capacity 3¼" to 5" incl.

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36" Hallden Drum Type, Capy. 33-38 Ga.
60" x 10 Ga. Cut-Off Line
Striene Sheet Mill Pack Shear. Shear packs up to ¼" thick, 20 to 62" wide, 54 to 100" long

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Late Type, Still Set-Up In Plant

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(3)—3500-KW Allis-Chalmers 5-unit sets consist of (2) 1750-KW Gen., 350/700-VDC, (1) 5000-HP syn. motor, 13800/6900/4160-V., 3 hp., 60 cy., (2) exciter generators.

• • •

(1)—S. & S. 5-unit set consists of—(1) 2500-HP syn. motor, 11000/4160-B., 3 ph., 60 cy., (1) 1060-KW Gen. 600-VDC, (2) 760-KW Gen. 600-VDC, (1) exciter gen. (Will split this set to fit your requirements).

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(1)—200-KW Set consisting of (2) 1000-KW gen. 600-VDC, (1) 2500-HP syn. motor, 11000/-4160-V., 3 ph., 60 cy.

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(1)—1875-KW Whse. 2-unit set—(1) 250-VDC gen., (1) 2700-HP syn. motor, 13800/6900/-4160-V., 3 ph., 60 cy.

• • •

(1)—1250-KW Gen. Elec. 2-unit set—(1) 132/265-VDC gen., (1) 1750-HP syn. motor, 4160-V., 3 ph., 60 cy.

• • •

(1)—850-KW Gen. Elec. 2-unit set—(1) 250/300-VDC gen., (1) 1250-HP syn. motor, 13800/-6900/4160-B., 3 ph., 60 cy.

MOTORS

(1)—2200 H.P. Westinghouse motor, 600 VDC., 92/132 R.P.M.

• • •

(2)—600 HP, Allis Chalmers Motors, 600 VDC, 300/600 R.P.M.

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1—AUTOMATIC COOLING BED FOR BARS up to 2" dia. consists of run-in table, cascade section, shuffle bar section, runout table, with all electrics, 200 ft. long.
1—24" & 52" x 77" TANDEM COLD REDUCTION MILL, 4-high, 3 stands.
1—18" & 40" x 42" TANDEM COLD REDUCTION MILL, 4-high, 5 stands.
1—28" x 40" HOT STRIP MILL, 2-high, reversing, with 2500 HP D.C. motor generator, etc.
1—25" x 42" x 66" HOT STRIP MILL, 4-high.
1—24" x 36" 2-HIGH MILL driven by 4000 HP motor, 4600/3/60.
1—22" x 36" 2-HIGH MILL driven by 600 HP motor, 4600/3/60.
1—16" x 22" COLD MILL, 2-high.
1—8" x 10" COLD MILL including uncoiler, recoiler and edging rolls.
2—28" 3-HIGH ROLL STANDS.
1—New 16" BAR MILL, one 3-high roll stand, pinion stand.
1—New 12" BAR MILL, four 3-high stands, pinion stand.
1—12" MERCHANT BAR MILL with 18" roughing mill and heating furnace.
1—9" BAR MILL, 3-high.
2—MORGAN TRAVELING TILTING TABLES for 24" 3-high bar mill.
1—34" x 192" ROLL GRINDER.
2—65-TON ELECTRIC MELTING FURNACE, TOP CHARGE, with all electrical and mechanical equipment, including 15,000 KVA and 13,333 KVA transformers.
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1—MAGNETIC SEPARATOR double pulleys, Stearns.
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1—SHUSTER STRAIGHTENING AND CUTTING MACHINE, cap. 1" rd.
1—HALLDEN STRAIGHTENING and cutting-off machine, capacity .562" brass rod.
1—POINTER for tubes 2" O.D. x ¼" wall maximum
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1—1200 HP GEAR DRIVE, 353 to 94.6 RPM, 3.73 to 1 ratio.
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1—Uncoiler, Cone Type, 54".
1—Recoiler for 72" O. D. x 90" wide.
1—Coil Buggy for 72" O. D. x 90" wide.
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formerly National Aluminate Corp.

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CORP.
P.O. BOX 217
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This section appears in the 1st and 3rd issues each month and carries announcements of plants offering specialized experience and facilities for the production of stampings, spinnings, weldments, wire forms, springs, screw machine products, forgings, castings, gears, dies, assemblies, special machinery, and services such as machine work, heat treating, plating, galvanizing, etc.

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TABLE 1

SUMMARY PHYSICAL TESTS, METALLURGICAL TEST

SIZE: .0359" x 42¾" x 76¾"

PART: EXTERIOR DOOR PANEL

Weight 26,900 — Al-Killed Steel

		Outside as Annealed				Center			Inside as Annealed				
		1	2	3	4	5	6	7	8	9	10	Average	Range
ROCKWELL HARDNESS	E_1	43	44	43	44	44	43	43	43	44	44	43.5	43/44
	C	44	42	42	43	44	43	43	44	44	43	43.2	42/44
	E_2	43	42	44	44	44	42	42	44	45	44	43.4	42/45
OLSEN DUCTILITY	E_1	415	415	420	420	420	420	420	415	415	415	417.5	415/420
	C	410	415	415	425	420	420	415	420	415	415	417.0	410/425
	E_2	410	415	420	425	415	415	415	415	415	420	416.5	410/425
MICRO GRAIN SIZE	E_1	6	6/7	6/7	6/7	7	7	7/8	7/8	7	7/8	.....	.....
	C	6/7	6/7	6/7	6/7	7/8	7/8	7/8	7/8	7/8	7/8	.....	.....
	E_2	6/7	6/7	6	6/7	7/8	7/8	7	7	7	7		

		L	T	L	T	L	T
TENSILE RESULTS	Yld. Str. (psi)	27,540	27,780	26,460	27,010	26,750	27,780
	Tens. Str. (psi)	44,910	45,290	45,760	45,210	46,680	47,050
	% Elong. (2")	40.0	39.0	40.0	38.0	39.0	39.0

Opened coil being rewound into a tight coil after annealing by Lee Wilson's patented coil handling system.

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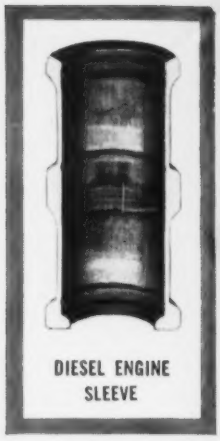

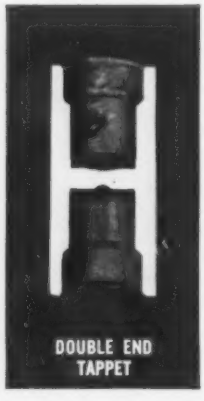

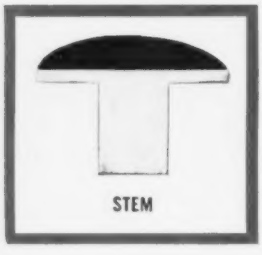

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